

RYLAND T. GIEBELHAUS

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EDUCATION

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|--------------------|---|----------------------------|
| PhD | University of Alberta
Doctor of Philosophy, Chemistry
Supervisor: Dr. James Harynuk
Grade Point Average (/4.0): 4.0 | September 2021 to Present |
| BSc (Hons.) | University of British Columbia
Bachelor of Science, Honors in Chemistry
Supervisors: Dr. Susan J. Murch; Dr. Thuy T. Dang
Thesis Title: Metabolomics and Hormonomics of <i>Mitragyna speciosa</i>
Graduating Average: 92.6% | September 2016 to May 2021 |

RESEARCH EXPERIENCE

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| University of Alberta, Edmonton
PhD (Chemistry)
Advisor: Dr. James J. Harynuk | September 2021 to Present |
| <ul style="list-style-type: none">• Development of a novel region of interest (ROI) selection tool for 1-dimensional and 2-dimensional gas chromatography mass spectrometry data using the MATLAB computational language.• Validation of wristband based passive samplers for use by expecting and post-partum mothers to monitor their exposure to volatiles in their environment using GC-FID.• Prototyping and testing of sampling methods and analytical techniques for the post-partum metabolomics screening by GC×GC-TOFMS.• Metabolomics of human samples (urine, breast milk, plasma) by GC×GC-TOFMS. | |
| University of British Columbia, Kelowna
BSc Honors Thesis
Thesis Title: Metabolomics and Hormonomics of <i>Mitragyna speciosa</i>
Advisors: Dr. Susan J. Murch and Dr. Thuy T. Dang | September 2020 to May 2021 |
| <ul style="list-style-type: none">• Development and validation of targeted and untargeted UPLC – MS/MS metabolomics method for plant metabolites.• Determination of intermediates in the mitragynine pathway in <i>M. speciosa</i>.• Application and implementation of the Design of Experiments (DoE) methodology.• Continued work on a metabolomics tool developed during summer 2020 research project. | |

University of British Columbia, Kelowna
Research Assistant, PlantSMART lab

January 2018 to August 2021

- Responsible for laboratory, including maintenance of instruments and plant cultures during COVID-19 (March 2020 to April 2021).
- Performed plant tissue culture and prepare growth medium.
- Developed and validate analytical methods on a UPLC – MS/MS.
- Designed and developed a searchable database and metabolomics tool that searches untargeted MS datasets for phytohormones using R, python, and HTML coding languages.
- Learned how to maintain, troubleshoot, and repair a UPLC – MS/MS instrument:
 - Replaced seals on the LC pumps.
 - Full cleaning of the LC system.
 - Replacement of parts in the sample manager.
 - Cleaning source and ion optics on the MS.

HONORS AND AWARDS

First Place Poster 4th Canadian Metabolomics Conference – 300 CAD	June 2023
Richard D. Sacks Award 1st Place Talk – 500 USD	June 2023
Upper Bound Talent Bursary – 150 CAD	May 2023
President's Doctoral Prize of Distinction – 10,000 CAD	April 2023
CIHR Canada Graduate Scholarship-Doctoral – 105,000 CAD	April 2023
Chemistry Recruitment Scholarship (PhD) – 5,000 CAD	September 2022
Richard D. Sacks Award 1st Place Poster – 500 USD	May 2022
Canada Graduate Scholarship-Master's (CGS-M) – 17,500 CAD	September 2021
Walter H Johns Graduate Fellowship – 5,800 CAD	September 2021
Chemistry Recruitment Scholarship (MSc) – 5,000 CAD	September 2021
Faculty of Science Graduate Scholarship – 2,000 CAD	September 2021
First Place Canadian Chemistry Conference and Exhibition – 75 CAD	August 2021
Second Place UBCO Undergraduate Research Conference	April 2021
Undergraduate Student Research Award (USRA) – 6,000 CAD	March 2021
ACPBC Undergraduate Student Scholarship – 1,000 CAD	June 2020

Undergraduate Student Research Award (URA) – 9,500 CAD	March 2020
Aboriginal Undergraduate Research Mentorship Award – 3,300 CAD	January 2020
Dean’s List	May 2019
Undergraduate Student Research Award – 9,500 CAD (Declined)	March 2020
Undergraduate Student Research Award (USRA) – 4,500 CAD	March 2019
Aboriginal Undergraduate Research Mentorship Award – 3,300 CAD	January 2019
Aboriginal Undergraduate Research Mentorship Award – 3,000 CAD	January 2018
DVC Scholarship for Continuing Students – 500 CAD	September 2017
Kelowna Medical Imaging Bursary – 1,000 CAD	June 2016
Graduation Program Examination Scholarship – 1,200 CAD	June 2016
SD #23 District Award Scholarship – 1,000 CAD	June 2016
Interior Savings Bursary – 1,000 CAD	June 2016

TEACHING EXPERIENCE

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| University of British Columbia, Kelowna | November 2022 |
| Guest Lecturer, CHEM 412: Methods in Metabolomics | |
| <ul style="list-style-type: none"> • Invited to deliver two 1.5-hour guest lecture to UBC Okanagan’s Methods in Metabolomics course delivered by Dr. Susan Murch. • Course is offered to senior undergraduate and graduate students in chemistry and biochemistry. • Discussed my research at UBC Okanagan, specifically HormonomicsDB, and ongoing research program at the University of Alberta. • Spoke on my personal interests in metabolomics and graduate school. | |
| University of British Columbia, Kelowna | August 2022 |
| Guest Lecturer, Metabolomics Short Course/Micro-credential | |
| <ul style="list-style-type: none"> • Invited to deliver a 2-hour guest lecture to UBC Okanagan’s Metabolomics Short Course/Micro-credential delivered by Dr. Susan Murch. • Discussed my research at UBC Okanagan and ongoing research program at the University of Alberta. • Spoke on my personal interests in metabolomics and important skills needed for metabolomics. | |

- University of Alberta, Edmonton** September 2021 to December 2021
Graduate Teaching Assistant, Chemistry
- Taught two lab sections biweekly of CHEM 10X: Introductory University Chemistry.
 - Guided students through performing experiments pertaining to the lab.
 - Marked lab reports and returned them in a timely fashion.

- University of British Columbia, Kelowna** September 2020 to December 2020
Teaching Assistant, Chemistry
- Taught two lab sections per week for CHEM 211: Introduction to Analytical Chemistry with an average of 20 students per lab.
 - Reviewed topics covered in lecture such as standard curves, chromatography, and instructed in procedure in the multiple experiments performed per week.
 - Marked lab reports and returned them in a timely fashion.

- University of British Columbia, Kelowna** September 2019 to December 2019
Teaching Assistant, Chemistry
- Taught one lab section for CHEM 1X1: Principles of Chemistry I with 20 students.
 - Reviewed topics covered in lecture and instructed in procedure in the experiments.
 - Lab reports were marked and returned in a timely fashion as well as exams.

- University of British Columbia, Kelowna** September 2018 to December 2018
Teaching Assistant, Chemistry
- Taught all students in CHEM 220: Atomic Structure and Molecular Bonding with 42 students.
 - Reviewed topics covered in lecture such as orbitals, orbital hybridization, molecular bonding, and molecular orbital theory.
 - Marked lab reports and returned them in a timely fashion.

- University of British Columbia, Kelowna** September 2017 to April 2021
Tutor, Chemistry Course Union
- Assisted undergraduate students in chemistry courses in learning concepts to succeed in exams and cultivate an interest in the field through holding office hours and hosting study sessions for exams.

SERVICE TO THE COMMUNITY AND OUTREACH

- 4th Annual Metabolomics Association of North America Conference**
Student Volunteer (August 2022 to September 2022)
- Assisting in planning conference, including organizing materials for attendees and sponsors.
 - Assisting in AV and conference room set up.
 - Tours of TMIC facilities at the University of Alberta campus.

Analytical Chemistry Visiting Speaker Series

Chair, Student Organizing Committee (July 2022 to February 2023)

- Working with a team of faculty members in the analytical division at the University of Alberta to organize guest lecturers.
- Communicate with analytical graduate students and guide in the selection process of visiting speakers.

NIEHS Exposome Workshop

Participant (July 2022 to September 2022)

- Participating in all 5 virtual workshops hosted by the National Institute of Environmental Health Sciences (NIEHS).
- Attended break out rooms and engaged in discussions about exposomics and metabolomics relating to human health.
- Preparing a “group authorship” publication to be submitted to *Exposome* highlighting the current state of exposomics.

Research Panel for CHEM 299 class

Panelist (November 2021)

- Presented as a panelist for of the CHEM 299 (Research Opportunity Program in Chemistry) class at the University of Alberta to talk to students about my research path from undergrad to graduate school.

Metabolomics Association of North America (MANA) Journal Club

Attendee and Presenter (April 2021 to Present)

- The MANA runs a weekly journal club for its student members to present recently published metabolomics papers to other students and faculty members. I attended each of the weekly journal clubs and also presented a paper to the audience during one of the meetings.

PlantSMART Lab, UBC, Kelowna

January 2018 to Present

Taught one graduate student and three undergraduate students how to prepare growth medium and techniques for aseptic plant tissue culture. Taught one undergraduate student, one graduate student, and one post-doctoral fellow how to maintain and use the UPLC-MS/MS system in the laboratory to perform screening and quantification. Maintains a working relationship with the PI, Dr. Murch, and continues to consult and mentor students on data handling and UPLC-MS analyses.

The Chemistry Course Union, UBC, Kelowna

April 2018 to April 2021

Mentored other executive members and “sub-executives” to teach them about the role of treasurer and president to prepare the organization for a smooth succession between academic years. Also mentored tutors to help with improving their tutoring skills. Have written reference letters for applications and served as a verifier for members medical school applications.

Big White Ski Club, Kelowna

November 2014 to April 2021

Coached with the Big White Ski Club for 7 consecutive seasons, mainly focusing on coaching the U12 program. Coached approximately 20 athletes, aged 10 – 11 each season with two to four other coaches. Ensured the safety of athletes while developing skiing skills and encouraging the adoption of a healthy lifestyle through regular exercise and proper nutrition. Additionally mentored five junior coaches on how to be an effective and professional coach to provide the most enjoyable and fulfilling environment to the athletes. A number of athletes continued onto coaching themselves, playing collegiate sports, or racing at the national level. One previous athlete of mine was named to the BC Ski Team in Spring 2022.

Gallaghers Canyon Golf Club, Kelowna

March 2015 to September 2018

Worked in guest services at Gallaghers Canyon Golf and Country Club in Kelowna for four seasons. Gallaghers is one of the top golf destinations in Canada, consistently ranked in the top 100, and also hosts an annual stop on the Canadian PGA tour. I was employed as the guest services manager during my last season (March to September 2018) where I was responsible for a team of 12 employees. My duties included the maintenance of a fleet of 75 golf carts, producing monthly budgets for salaries and expenditures, and ensuring my team conducted themselves in a respectful and professional manner to best represent the facility.

PUBLICATIONS

REFEREED PUBLICATIONS

Ryland T. Giebelhaus, Kieran Tarazona Carrillo, Seo Lin Nam, A. Paulina de la Mata, Paul Hui, Juan F. Araneda, and James J. Harynuk. (2022). “Detection of Common Adulterants in Olive Oils by Bench Top 90 MHz ¹H Nuclear Magnetic Resonance and Partial Least Squares Regression”, *Journal of Food Composition and Analysis*, **2023**, 105465.

Ryland T. Giebelhaus, Laura Biggs, Susan J. Murch, and Lauren A.E. Erland. (2022). “Untargeted and targeted metabolomics to understand plant growth regulation and evolution in Wollemi pine (*Wollemia nobilis*)”, *Botany*, **2023**, e-First.

Katharina Völlmecke, Rowshon Afroz, Sascha Bierbach, Lee Josefine Brenker, Sebastian Frücht, Alexandra Glass, **Ryland Giebelhaus**, Axel Hoppe, Karen Kanemaru, Michal Lazarek, Lukas Rabbe, Longfei Song, Andrea Velasco Suarez, Shuang Wu, Michael Serpe, and Dirk Kuckling. (2022). “Hydrogel Based Biosensors”, *Gels*, **2022**, 8(12), 787.

Ryland T. Giebelhaus, Michael D. Sorochan Armstrong, A. Paulina de la Mata, and James J. Harynyuk. “Untargeted Region of Interest Selection for GC-MS Data using a Pseudo F-Ratio Moving Window”, *Journal of Chromatography A*, **2022**, 1682, 463499.

Ryland T. Giebelhaus, Lauren A.E. Erland, and Susan J. Murch. “HormonomicsDB: a novel workflow for the untargeted analysis of plant growth regulators and hormones”, *F1000Research*, **2022**, 11:1191.

Lauren A.E. Erland, **Ryland T. Giebelhaus**, Jerrin M.R. Victor, Susan J. Murch, and Praveen K. Saxena. “The Morphoregulatory Role of Thidiazuron: Metabolomics-Guided Hypothesis Generation for Mechanisms of Activity”, *Biomolecules*, **2020**, 10(9), 1253.

PREPRINTS

Ryland T. Giebelhaus, Michael D. Sorochan Armstrong, A. Paulina de la Mata, and James J. Harynyuk. “Untargeted Region of Interest Selection for GC-MS Data using a Pseudo F-Ratio Moving Window (ψ FRMV)”, *ArXiv*, **2022**, doi:10.48550/ARXIV.2208.00313

CONFERENCE PRESENTATIONS AND ABSTRACTS

Note: Presenter identified with *

Ryland T. Giebelhaus, Robin J. Abel, A. Paulina de la Mata, and James J. Harynyuk*, 2023, “Developing Novel Workflows for Denoising and Processing GC-MS and GC×GC-TOFMS Data” (Poster), *The 19th Annual Conference of the Metabolomics Society*, Niagara Falls, Canada, June 18th-22nd.

Ryland T. Giebelhaus*, A. Paulina de la Mata, Matthew S. Hicks, and James J. Harynyuk, 2023, “Untargeted GC×GC-TOFMS metabolomics and exposomics to understand the impact of fetal and neonatal cannabis exposures” (Poster), *The 19th Annual Conference of the Metabolomics Society*, Niagara Falls, Canada, June 18th-22nd.

Ryland T. Giebelhaus*, Seo Lin Nam, A. Paulina de la Mata, and James J. Harynyuk, 2023, “GC×GC-TOFMS Exposomics to Track Breast Milk and Baby's Urinary Metabolites in the First Month of Life” (Invited Talk), *4th Annual Canadian Metabolomics Conference (CanMetCon) 2023*, Niagara-on-the-Lake, Canada, June 15th-16th.

Ryland T. Giebelhaus*, Ryan P. Dias, A. Paulina de la Mata, and James J. Harynyuk, 2023, “Profiling and Characterizing the Volatile Exposome with Wristband-Based Passive Samplers and GC×GC-MS” (Poster), *4th Annual Canadian Metabolomics Conference (CanMetCon) 2023*, Niagara-on-the-Lake, Canada, June 15th-16th. **1st Place Poster**

- Kieran Tarazona Carrillo*, Naëma S. Béziat, **Ryland T. Giebelhaus**, Gerardo Cebrián-Torrejón, Olivier Gros, A. Paulina de la Mata, and James J. Harynuk, 2023, “Environmental exposures evaluated with crab gills and algae samples from Caribbean aquatic ecosystems” (Talk), *4th Annual Canadian Metabolomics Conference (CanMetCon) 2023*, Niagara-on-the-Lake, Canada, June 15th-16th. **3rd Place Talk**
- A. Paulina de la Mata*, Trevor A. Johnson, Dylan B. Long, Seo Lin Nam, **Ryland T. Giebelhaus**, and James J. Harynuk, 2023, “Evaluation of Extraction Systems for Soil and Shale Samples by GC×GC-TOFMS” (Poster), *4th Annual Canadian Metabolomics Conference (CanMetCon) 2023*, Niagara-on-the-Lake, Canada, June 15th-16th.
- Stephanie Vertelo Porto*, Ryan Dias, **Ryland T. Giebelhaus**, Seo Lin Nam, A. Paulina de la Mata, and James J. Harynuk, 2023, “GC×GC-TOFMS analysis of Canadian Pilsner Beer volatile profile and its impact in tasting” (Poster), *20th International GC×GC Symposium*, Canmore, Canada, May 28th–June 1st.
- Kieran Tarazona Carrillo*, Naëma S. Béziat, **Ryland T. Giebelhaus**, Gerardo Cebrián-Torrejón, Olivier Gros, A. Paulina de la Mata, and James J. Harynuk, 2023, “Environmental exposures evaluated with crab gills and algae samples from Caribbean aquatic ecosystems” (Poster), *20th International GC×GC Symposium*, Canmore, Canada, May 28th–June 1st.
- Ryland T. Giebelhaus***, Benjamin Ambrose, Sebastian Dosoftci, A. Paulina de la Mata, and James J. Harynuk, 2023, “A Tale of Three Peaks: Exploration of Triplet Peaks of Creatinine in Human Urine Samples in GC×GC-TOFMS with NMR and Multiway Decomposition” (Poster), *20th International GC×GC Symposium*, Canmore, Canada, May 28th–June 1st.
- Ryland T. Giebelhaus***, Sebastian Dosoftci, A. Paulina de la Mata, and James J. Harynuk, 2023, “Fluids three-ways: Comparison of dynamic head space, solid phase microextraction, and derivatization for the untargeted GC×GC-TOFMS metabolomics and exposomics of urine and human breastmilk” (Poster), *20th International GC×GC Symposium*, Canmore, Canada, May 28th–June 1st.
- Ryland T. Giebelhaus***, Robin J. Abel, Michael D. Sorochan Armstrong, Mason Bly, Yuxi Chen, Steven Heung, Kynan Sorochan, Zihan Wang, A. Paulina de la Mata, and James J. Harynuk, 2023, “Developing Novel Workflows for Processing GC×GC-TOFMS Data” (Invited Talk), *20th International GC×GC Symposium*, Canmore, Canada, May 28th–June 1st. **1st Place Talk | Richard D. Sacks Award.**
- Ryland T. Giebelhaus**, Robin J. Abel, Seo Lin Nam, A. Paulina de la Mata, and James J. Harynuk*, 2023, “Employing the Fast Fourier Transform to Denoise, Smooth, and Enhance GC×GC-TOFMS Data” (Presentation), *20th International GC×GC Symposium*, Canmore, Canada, May 28th–June 1st.
- Susan J. Murch*, **Ryland T. Giebelhaus**, and Lauren A.E. Erland, 2023, “HormonomicsDB: A tool to understand plant growth regulators”, *Joint Canadian Society of Plant Biologists Western Regional Meeting and UVic Forest Biology Symposium*, Victoria, Canada, May 1st-2nd.

Ryland T. Giebelhaus*, Sebastian Dosofoei, A. Paulina de la Mata, and James J. Harynuk, 2022, “Fluids three-ways: Comparison of dynamic head space, solid phase microextraction, and derivatization for the untargeted GC×GC-TOFMS metabolomics of urine and human breastmilk”, *The 4th Annual Metabolomics Association of North America Conference*, Edmonton, Canada, September 16th—18th.

Ryland T. Giebelhaus*, Sebastian Dosofoei, A. Paulina de la Mata, and James J. Harynuk, 2022, “Fluids three-ways: Comparison of dynamic head space, solid phase microextraction, and derivatization for the untargeted GC×GC-TOFMS metabolomics of urine and human breastmilk” (Poster), *The 4th Annual Metabolomics Association of North America Conference*, Edmonton, Canada, September 16th—18th.

A. Paulina de la Mata*, Kieran Tarazona Carrillo, **Ryland T. Giebelhaus**, and James J. Harynuk, 2022, “Study of the Metabolome of Meconium by GC×GC-TOFMS using different injection techniques” (Poster), *The 4th Annual Metabolomics Association of North America Conference*, Edmonton, Canada, September 16th—18th.

Thomas Head*, **Ryland T. Giebelhaus**, A. Paulina de la Mata, Paul Shipley, and James J. Harynuk, 2022, “Discrimination of Extra-Virgin Olive Oil Samples from Other Botanical Oils using Machine Learning Algorithms Trained on Low-Field Benchtop NMR Spectra.” (Poster), *The 4th Annual Metabolomics Association of North America Conference*, Edmonton, Canada, September 16th—18th. **Early Career Member | Best Poster Award**

Sebastian Dosofoei*, **Ryland T. Giebelhaus**, A. Paulina de la Mata, and James J. Harynuk, 2022, “Urine 3 Ways: Comparing Urine Metabolomics Sampling using Derivatization, Dynamic Headspace, and Solid-Phase Microextraction” (Poster), *Undergraduate Research Symposium*, Edmonton, Canada, August 26th.

A. Paulina de la Mata*, Kieran Tarazona Carrillo, **Ryland T. Giebelhaus**, and James J. Harynuk, 2022, “Metabolome of Meconium by GC×GC-TOFMS” (Poster), *18th International Conference of the Metabolomics Society*, Valencia, Spain, June 19th – 23rd.

Ryland T. Giebelhaus*, Michael D.S. Armstrong, A. Paulina de la Mata, and James J. Harynuk, 2022, “Region of Interest Selection for GC-MS and GC×GC-TOFMS Data with a Pseudo Fisher Ratio Moving Window”, *105th Canadian Chemistry Conference and Exhibition*, Calgary, Alberta, June 13th – 17th.

Ryland T. Giebelhaus, Lauren A.E. Erland, and Susan J. Murch*, 2022, “Hydrophilic interaction chromatography for quantification: Current challenges and future directions”, *105th Canadian Chemistry Conference and Exhibition*, Calgary, Alberta, June 13th – 17th.

A. Paulina de la Mata*, Kieran Tarazona Carrillo, Ryan P. Dias, and **Ryland T. Giebelhaus**, 2022, “Biofluids, Biosolids and Food Analysis with Different Types of Sample Introduction for GC×GC-TOFMS: How GERSTEL Changed Our Lab Life” (Poster), *19th International GC×GC Symposium*, Online, May 29th to June 2nd.

Ryland T. Giebelhaus*, Michael D.S. Armstrong, A. Paulina de la Mata, and James J. Harynuk, 2022, “Region of Interest Selection for GC×GC-TOFMS Data using a Pseudo Fisher Ratio Moving Window with Watershed Segmentation” (Poster), *19th International GCxGC Symposium*, Online, May 29th – June 2nd. **1st Place Poster | Richard D. Sacks Award.**

Ryland T. Giebelhaus*, A. Paulina de la Mata, Ryan P. Dias, Matt S. Hicks, and James J. Harynuk, 2022, “The development of new analytical tools to better understand the impact of fetal and infant cannabis exposure” (Poster), 2022, *University of Alberta Faculty of Medicine 2022 Pediatric Research Day*, Edmonton, Alberta, April 20th.

Ryland T. Giebelhaus*, Michael D.S. Armstrong, A. Paulina de la Mata, and James J. Harynuk, 2022, “Region of Interest Selection for GC-MS Data with a Pseudo Fisher Ratio Moving Window”, *13th Winter Symposium on Chemometrics*, Online, February 28th – March 4th.

James J. Harynuk*, Michael D.S. Armstrong, and **Ryland T. Giebelhaus**, 2022, “Towards fully automated processing of GC×GC-TOFMS data”, *13th Multi-dimensional chromatography workshop*, Online, January 31st – February 2nd.

Ryland T. Giebelhaus*, Lauren A.E. Erland, and Susan J. Murch, 2021, “A Snapshot in Time: Metabolomic comparison of the living fossil *Wollemia nobilis* and *Araucaria heterophylla*” (Poster), *The 3rd Annual Metabolomics Association of North America Conference*, Online, October 18 – 21st.

Ryland T. Giebelhaus*, Lauren A.E. Erland, and Susan J. Murch, 2021, “HormonomicsDB: A new tool for analysis of plant growth regulators” (Poster), *IUPAC | CCCE 2021*, Online, August 17th. **1st Place Undergraduate Poster in Analytical Division.**

Ryland T. Giebelhaus*, Lauren A.E. Erland, Thu-Thuy T. Dang, and Susan J. Murch, 2021, “Are all kratom products created equal? Metabolomics of *Mitragyna speciosa* and commercial kratom products” (Poster), *60th Anniversary Meeting Phytochemical Society of North America*, Online, July 25th – 30th.

Ryland T. Giebelhaus*, Lauren A.E. Erland, and Susan J. Murch, 2021, “A Snapshot in Time: Metabolomic comparison of the living fossil *Wollemia nobilis* and *Araucaria heterophylla*” (Poster), *The 17th Annual Conference of the Metabolomics Society*, Online, June 22 – 24th.

Lauren A.E. Erland*, **Ryland T. Giebelhaus**, and Susan J. Murch, 2021, “Cranberry as a source of novel phyto-melatonin natural health products”, *Natural Health Products Research Society Virtual Conference*, Online, June 7 – 9th & 14 – 16th.

Ryland T. Giebelhaus*, Thu-Thuy T. Dang, and Susan J. Murch, 2021, “Are all kratom products created equal? Metabolomics of *Mitragyna speciosa* and commercial kratom products” (Poster), *UBC Okanagan Undergraduate Research Conference*, Online, April 14th. **2nd Place Poster at Conference.**

Ryland T. Giebelhaus*, Lauren A.E. Erland, and Susan J. Murch, 2020, “HormonomicsDB: A new tool for analysis of plant growth regulators” (Poster), *The 16th Annual Conference of the Metabolomics Society*, Online, October 27 – 29th.

Ryland T. Giebelhaus*, and Susan J. Murch, 2020, “HormonomicsDB: A new tool for analysis of plant growth regulators”, *UBC Okanagan 2020 Undergraduate Research Awards Symposium*, Online, September 17.

Ryland T. Giebelhaus*, and Susan J. Murch, 2020, “HormonomicsDB: A new tool for analysis of plant growth regulators”, *The 2nd Annual Metabolomics Association of North America Conference*, Online, September 14 – 16.

Lauren A.E. Erland*, **Ryland T. Giebelhaus**, Jerrin M.R. Victor, Susan J. Murch, and Praveen K. Saxena, 2020, “The Morphoregulatory Role of Thidiazuron: Metabolomics-Guided Hypothesis Generation for Mechanisms of Activity” (Poster), *The 2nd Annual Metabolomics Association of North America Conference*, Online, September 14 – 16.

Ryland T. Giebelhaus*, and Susan J. Murch, 2019, “Validation and Application of an Underivatized Method to Detect Glyphosate and its metabolite AMPA in Food Samples”, *UBC Okanagan 2019 Undergraduate Research Awards Symposium*, Kelowna, BC, September 17 – 18.

PRESS

MetaboInterview: CanMetCon 2023 Awardees

July 2023

- Featured in an article and video interview in the July issue of MetaboNews discussing my poster which won First place at the CanMetCon 2023 meeting. (http://www.metabonews.ca/Jun2023/MetaboNews_Jun2023.pdf)

Doctoral Research Award: Canada Graduate Scholarships

June 2023

- The Metabolomics Innovation Centre (TMIC) press release announcing my Canadian Institutes of Health Research (CIHR) Canadian Graduate Scholarship – Doctoral (CGS-D). (<https://metabolomicscentre.ca/doctoral-research-award-canada-graduate-scholarships/>)

Interview with TMIC Young Scientists

October 2022

- The Metabolomics Innovation Centre (TMIC) press release interviewing young researchers who gave talks at the 2022 Metabolomics Association of North America (MANA) conference. (<https://metabolomicscentre.ca/tmic-young-scientists/>)
- This was an interview where I discussed my comprehensive two-dimensional gas chromatography metabolomics research at The Metabolomics Innovation Centre to explore the exposome and metabolome in urine and breast milk samples. This was an in-person interview transcribed into text for publication on-line.

PROFESSIONAL AFFILIATIONS

Metabolomics Association of North America <i>Student Member</i>	2020 to Present
Metabolomics Society <i>Student Member</i>	2020 to Present
Chemical Institute of Canada <i>Student Member</i>	2019 to Present