

Michael J. Sieler Jr.

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EDUCATION

Oregon State University, Corvallis, OR <i>Ph.D. Microbiology, minor: Biological Data Sciences. GPA: 3.95</i>	Expected Summer 2025
Oregon State University, Corvallis, OR <i>B.S. Bioresource Research, options: Bioinformatics and Genomics. GPA: 3.82</i>	June 2020

RESEARCH APPOINTMENTS

Graduate Student Researcher , Mentor: Thomas J. Sharpton Research focus in host-associated microbiome stability to environmental stressors Department of Microbiology, Oregon State University	2020-Present
Phd Intern , Mentor: Lisa Bramer and Kelly Stratton Research focus in metabolomic data science and bioinformatics Pacific Northwest National Laboratory	2023-2024
Undergraduate Student Researcher , Mentor: Thomas J. Sharpton Research focus in zebrafish microbiome ecology and bioinformatics Department of Microbiology, Oregon State University	2018-2020
Undergraduate Student Researcher , Mentor: Taifo Mahmud Research focus in identifying novel antibiotic compounds Department of Pharmacy, Oregon State University	2017-2018

SCIENTIFIC PUBLICATIONS

Keaton Stagaman, Alexandra Alexiev, **Michael J. Sieler Jr.**, Austin Hammer, Kristin D. Kasschau, Lisa Truong, Robyn L. Tanguay & Thomas J. Sharpton (2024). "The zebrafish gut microbiome influences benzo[a]pyrene developmental neurobehavioral toxicity". *Sci Rep*.

- Collected >1000 zebrafish embryos, exposed them to treatments (including germ-free derivation) and plated them; dissected >100 intestines and prepared intestines for DNA extraction; and contributed to the writing and editing of the manuscript.

Austin Hammer, Christopher Gaulke, Manuel Garcia-Jaramillo, Connor Leong, **Michael J. Sieler Jr.**, Jeff Morré, Yuan Jiang, Claudia Maier, Michael Kent, Thomas Sharpton, and Jan Fred Stevens (2024). "Gut microbiota metabolically mediate intestinal helminth infection in Zebrafish". *mSystems*.

- Designed figure displaying experimental design schematic.

Michael J. Sieler Jr., Colleen E Al-Samarrie, Kristin D Kasschau, Zoltan M Varga, Michael L Kent, Thomas J Sharpton (2023). "Disentangling the link between zebrafish diet, the gut microbiome succession and *Mycobacterium chelonae* infection." *Anim. Microbiome*.

- Conducted gut microbiome statistical analyses; contributed to the writing and editing of the manuscript; and prepared the figures.

Scientific publications continued on next page.

Joseph A Szule, Lawrence R Curtis, Thomas J Sharpton, Christiane V Löhr, Susanne M Brander, Stacey L Harper, Jamie M Pennington, Sara J Hutton, **Michael J. Sieler Jr.**, Kristin D Kasschau (2022). "Early Enteric and Hepatic Responses to Ingestion of Polystyrene Nanospheres from Water in C57BL/6 Mice." *Front. Water*.

- Performed the gut microbiome and integrated statistical analyses; contributed to the preparation and editing of the manuscript; and prepared the figures.

Maude M David, Christine Tataru, Quintin Pope, Lydia J Baker, Mary K English, Hannah E Epstein, Austin Hammer, Michael Kent, **Michael J. Sieler Jr.**, Ryan S Mueller, Thomas J Sharpton, Fiona Tomas, Rebecca Vega Thurber, Xiaoli Z Fern (2022). "Revealing General Patterns of Microbiomes That Transcend Systems: Potential and Challenges of Deep Transfer Learning." *Msystems*.

- Contributed to writing and editing the main manuscript text.

Thomas J. Sharpton, Keaton Stagaman, **Michael J. Sieler Jr.**, Holly K. Arnold, Edward W. Davis II (2021). "Phylogenetic integration reveals the zebrafish core microbiome and its sensitivity to environmental exposures." *Toxics*.

- Contributed to data curation, writing and editing the main manuscript text.

IN-PREP & UNDER REVIEW PUBLICATIONS

Michael J. Sieler Jr., Colleen E Al-Samarrie, Kristin D Kasschau, Michael L Kent, Thomas J Sharpton. "Modelling the zebrafish gut microbiome's resistance and sensitivity to climate change and infection" *In-prep*.

- Designed and conducted experiment; conducted gut microbiome statistical analyses; contributed to the writing and editing of the manuscript; and prepared the figures.
- **GitHub Repo:** https://github.com/sielerjm/Sieler2025_ZF_Temperature_Parasite
- **R Shiny App:** <https://michael-sieler.shinyapps.io/MicrobiomeDiversityShinyApp/>

Damon T. Leach, **Michael J. Sieler Jr.**, Kelly G. Stratton, Rachel E. Richardson, Jennifer E. Kyle, Young-Mo Kim, Josie G. Eder, Kristin M. Engbrecht, Athena A. Schepmoes, Bobbie-Jo M. Webb-Robertson, Lisa Bramer. "Analyzing batch effect correction algorithms for small molecule data using ground truth from a designed experiment." *In-prep*.

- Contributed to statistical analyses, writing and editing the main manuscript text.

Emilee Lance, **Michael J. Sieler Jr.**, Colleen E Al-Samarrie, Kristin D Kasschau, Michael L Kent, Thomas J Sharpton. "Investigating the interaction of host genetics and parasite burden on the microbiome in zebrafish". *In-prep*.

- Contributed to statistical analyses, writing, and editing of the manuscript.

PRESENTATIONS

Connecting Microbiome Communities

Society for Industrial Microbiology and Biotechnology

"Modelling the Gut Microbiome's Resistance and Resilience to Climate Change and Infection in Zebrafish"

2024

San Diego, California

9th Conference on Beneficial Microbes

University of Wisconsin

"Modelling the Gut Microbiome's Resistance and Resilience to Climate Change and Infection in Zebrafish"

2024

Madison, Wisconsin

5th Annual MANA Conference

Metabolomics Association of North America (MANA)

"Choice of batch correction method is an important factor in small molecule study"

2023

Columbia, Missouri

Zebrafish Husbandry Workshop

Aquaculture

"Effects of diet on growth and the microbiome"

2022

San Diego, CA (virtual)

3rd International Fish Microbiota Workshop

Chinese Academy of Agriculture Sciences

"Zebrafish laboratory diets differentially alter gut microbiota composition"

2021

Beijing, China (virtual)

PANELS

9th Conference on Beneficial Microbes

University of Wisconsin

"The Importance of Inclusive Practices in Microbiome Science"

2024

Madison, Wisconsin

WORKSHOPS HOSTED

Connecting Microbiome Communities

Society for Industrial Microbiology and Biotechnology

"Microbiome Metadata Mastery and Research Training: Equipping the Next Generation of Researchers Across Academia, Government, and Industry"

2024

San Diego, California

Microbiology Department

Oregon State University

"NMDC: Metadata Standards and Submission Portal for Multi-Omic Analysis"

2024

Corvallis, OR

POSTERS

80th Annual OPHA Conference

Oregon Public Health Association

"The Human Gut Microbiome at the Intersection of Public Health and Social Equity"

2024

Corvallis, OR

ARCS Annual Scholar Event

ARCS Foundation

"How do external environmental factors impact the gut microbiome to influence host health?"

2022

Portland, OR

2nd International Fish Microbiota Workshop

University of Oregon

"The gut microbiome drives Benzo(a)pyrene's impact on zebrafish behavioral development"

2019

Eugene, OR

College of Agriculture Science Showcase

Oregon State University

"The gut microbiome drives Benzo(a)pyrene's impact on zebrafish behavioral development"

2019

Corvallis, OR

TEACHING APPOINTMENTS

Graduate Teaching Assistant

General Microbiology Lab (MB 303, Spring)

2022-2023

Human Microbiome (MB 436, Spring)

2021

Introduction to Microbiology (MB 230, Spring)

2021

FELLOWSHIPS & AWARDS

OSU Scholarly Presentation Award (\$600)

Oregon State University

Competitive funding to support graduate students presenting their research at professional conferences.

2024

NMDC Ambassador (\$1,000)

National Microbiome Data Collaborative

Recognized and received training for early career contributions for promoting and leading workshops on findable, accessible, interoperable and reusable microbiome research data and workflows.

2024 – 2025

ODFW Fish Health Graduate Research Fellowship (\$56,000)

Oregon Department of Fish and Wildlife

Recognized for research in Microbiology at Oregon State University, focusing on fish health issues to benefit Oregon's fish populations.

2023 – 2025

Science Communication Fellow

Oregon Museum of Science and Industry

Received certified training in informal science education and engagement with public audiences

2020 – Present

ARCS Scholar (\$18,000)

2020 – 2023

ARCS Foundation

Recognized for early significant contributions to scientific research

PROFESSIONAL AFFILIATION & SERVICE

Pernot Microbiology Summer Camp - Camp Mentor

2022, 2024

Department of Microbiology, Oregon State University

Supervised 20 high school students from historically underrepresented backgrounds in learning laboratory techniques.

Food and Nutrition Special Interest Section

2023-Present

Founding Section Member

*Oregon Public Health Association**Portland, OR***Microbes and Social Equity Working Group**

2022-Present

Member

Microbiology Graduate Student Association

2022 – 2023

President

*Oregon State University**Corvallis, OR***ADDITIONAL SKILLS & TRAINING**

- **Programming Languages:** R, Python, C# (Unity), Git, HTML, CSS, C++, UNIX/LINUX
- **Statistics and Data Analytics:** multivariate regression, model building and selection, data visualization (Ggplot, plotly, R Shiny)
- **Bioinformatics:** 16S sequencing, genomic & metabolomic analysis, batch effect correction algorithms, DADA2, Phyloseq, Mothur, HMMER, FastTree
- **Molecular Biology:** zebrafish husbandry, DNA extraction, PCR, gel electrophoresis
- **Other:** Microsoft Office Suite, Adobe Suite
- **Languages:** English (Native), German (B2), Spanish (A1)