Michael J. Sieler Jr.

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EDUCATION

Oregon State University, Corvallis, OR Expected Summer 2025
Ph.D. Microbiology, minor: Biological Data Sciences. GPA: 3.95

Oregon State University, Corvallis, OR June 2020
B.S. Bioresource Research, options: Bioinformatics and Genomics. GPA: 3.82

RESEARCH APPOINTMENTS

Graduate Student Researcher, Mentor: Thomas J. Sharpton 2020-Present
Research focus in host-associated microbiome stability to environmental stressors
Department of Microbiology, Oregon State University

Phd Intern, Mentor: Lisa Bramer and Kelly Stratton 2023-2024
Research focus in metabolomic data science and bioinformatics
Pacific Northwest National Laboratory

Undergraduate Student Researcher, Mentor: Thomas J. Sharpton 2018-2020
Research focus in zebrafish microbiome ecology and bioinformatics
Department of Microbiology, Oregon State University

Undergraduate Student Researcher, Mentor: Taifo Mahmud 2017-2018
Research focus in identifying novel antibiotic compounds
Department of Pharmacy, Oregon State University

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 2024
Society for Industrial Microbiology and Biotechnology San Diego, California
"Modelling the Gut Microbiome's Resistance and Resilience to Climate Change and Infection in Zebrafish"

9th Conference on Beneficial Microbes 2024
University of Wisconsin Madison, Wisconsin
"Modelling the Gut Microbiome's Resistance and Resilience to Climate Change and Infection in Zebrafish"

5th Annual MANA Conference 2023
Metabolomics Association of North America (MANA) *Columbia, Missouri*
"Choice of batch correction method is an important factor in small molecule study"

Zebrafish Husbandry Workshop 2022
Aquaculture *San Diego, CA (virtual)*
"Effects of diet on growth and the microbiome"

3rd International Fish Microbiota Workshop 2021
Chinese Academy of Agriculture Sciences *Beijing, China (virtual)*
"Zebrafish laboratory diets differentially alter gut microbiota composition"

PANELS

9th Conference on Beneficial Microbes 2024
University of Wisconsin Madison, Wisconsin
"The Importance of Inclusive Practices in Microbiome Science"

WORKSHOPS

Connecting Microbiome Communities 2024
Society for Industrial Microbiology and Biotechnology San Diego, California
"Microbiome Metadata Mastery and Research Training: Equipping the Next Generation of Researchers Across Academia, Government, and Industry"

Microbiology Department 2024
Oregon State University *Corvallis, OR*
"NMDC: Metadata Standards and Submission Portal for Multi-Omic Analysis

POSTERS

80th Annual OPHA Conference 2024
Oregon Public Health Association *Corvallis, OR*
"The Human Gut Microbiome at the Intersection of Public Health and Social Equity"

ARCS Annual Scholar Event 2022
ARCS Foundation *Portland, OR*
"How do external environmental factors impact the gut microbiome to influence host health?"

2nd International Fish Microbiota Workshop 2019
University of Oregon *Eugene, OR*
"The gut microbiome drives Benzo(a)pyrene's impact on zebrafish behavioral development"

College of Agriculture Science Showcase 2019
Oregon State University *Corvallis, OR*
"The gut microbiome drives Benzo(a)pyrene's impact on zebrafish behavioral development"

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) 2024
Oregon State University
Competitive funding to support graduate students presenting their research at professional conferences.

NMDC Ambassador ($1,000) 2024 – 2025
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.

ODFW Fish Health Graduate Research Fellowship ($56,000) 2023 – 2025
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.

Science Communication Fellow 2020 – Present
Oregon Museum of Science and Industry
Received certified training in informal science education and engagement with public audiences

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, HMTL, 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)