

Michael J. Sieler Jr., Ph.D.

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EDUCATION

Oregon State University, Corvallis, OR <i>Ph.D. Microbiology. GPA: 3.95</i> Dissertation: “Defining the context dependence of how the zebrafish (<i>Danio rerio</i>) gut microbiome responds to environmental stressors”	Aug 2025
Oregon State University, Corvallis, OR <i>B.S. Bioresource Research, options: Bioinformatics and Genomics. GPA: 3.82</i>	June 2020

RESEARCH APPOINTMENTS

Postdoctoral Researcher , Sharpton Lab Microbiome data science Department of Microbiology, Oregon State University	2025-Present
Ph.D. Graduate Student Researcher , Mentor: Thomas J. Sharpton Research focus in host-associated microbiome stability to environmental stressors Department of Microbiology, Oregon State University	2020-2025
Ph.D. 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

Michael J. Sieler Jr., Colleen E Al-Samarrie, Kristin D Kasschau, Michael L Kent, Thomas J Sharpton (2025). “Modelling the zebrafish gut microbiome's resistance and sensitivity to climate change and infection” [Front. Microbiomes](#).

- Designed and conducted experiment; collected 260 fecal samples; 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

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.

Scientific publications continued on next page.

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.

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., Connor Leong, Kristin D Kasschau, Michael L Kent, Thomas J Sharpton (2025). "Evaluating whether stress history impacts zebrafish gut microbiome's resistance and resiliency to environmental stressors". *In-prep*.

- Designed and conducted experiment; designed and conducted experiment; collected 1000's of fecal and intestinal samples for microbiome and transcriptomic analysis; conducted multi-omic statistical analyses; contributed to the writing and editing of the manuscript; and prepared the figures.

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*.

- Bioinformatically processed and analyzed 200+ lipidomic samples; 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

Seminar, Department of Genetics and Evolution

University of Geneva

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

2025

Geneva, Switzerland

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 <i>University of Wisconsin</i> “Modelling the Gut Microbiome’s Resistance and Resilience to Climate Change and Infection in Zebrafish”	2024 Madison, Wisconsin
5th Annual MANA Conference <i>Metabolomics Association of North America (MANA)</i> “Choice of batch correction method is an important factor in small molecule study”	2023 Columbia, Missouri
Zebrafish Husbandry Workshop <i>Aquaculture</i> “Effects of diet on growth and the microbiome”	2022 San Diego, CA (virtual)
3rd International Fish Microbiota Workshop <i>Chinese Academy of Agriculture Sciences</i> “Zebrafish laboratory diets differentially alter gut microbiota composition”	2021 Beijing, China (virtual)

PANELS

9th Conference on Beneficial Microbes – Panelist <i>University of Wisconsin</i> “The Importance of Inclusive Practices in Microbiome Science”	2024 Madison, Wisconsin
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WORKSHOPS

Microbiome Data Analytics Boot Camp – Trainer <i>Skills for Health and Research Professionals (SHARP), Columbia University</i> “Planning, generating, and analyzing 16S rRNA gene sequencing surveys” <ul style="list-style-type: none"> Supported workshop participants in microbiome data analysis 	2025 Virtual (remote)
Connecting Microbiome Communities – Trainer <i>Society for Industrial Microbiology and Biotechnology</i> “Microbiome Metadata Mastery and Research Training: Equipping the Next Generation of Researchers Across Academia, Government, and Industry” <ul style="list-style-type: none"> Co-led workshop, prepared training and demonstration materials 	2024 San Diego, California
Microbiology Department – Trainer <i>Oregon State University</i> “NMDC: Metadata Standards and Submission Portal for Multi-Omic Analysis” <ul style="list-style-type: none"> Led workshop, prepared training and demonstration 	2024 Corvallis, OR

POSTERS

College of Science Graduate Science Research Showcase <i>Oregon State University</i> “Modelling the Gut Microbiome’s Resistance and Resilience to Climate Change and Infection in Zebrafish”	2025 Corvallis, OR
80th Annual OPHA Conference <i>Oregon Public Health Association</i> “The Human Gut Microbiome at the Intersection of Public Health and Social Equity”	2024 Corvallis, OR
ARCS Annual Scholar Event <i>ARCS Foundation</i> “How do external environmental factors impact the gut microbiome to influence host health?”	2022 Portland, OR
2nd International Fish Microbiota Workshop <i>University of Oregon</i> “The gut microbiome drives Benzo(a)pyrene’s impact on zebrafish behavioral development”	2019 Eugene, OR
College of Agriculture Science Showcase <i>Oregon State University</i> “The gut microbiome drives Benzo(a)pyrene’s impact on zebrafish behavioral development”	2019 Corvallis, OR

TEACHING APPOINTMENTS & MENTORSHIP

Graduate Teaching Assistant

General Microbiology Lab (MB 303, Spring)	2022-2023
Human Microbiome (MB 436, Spring)	2021
Introduction to Microbiology (MB 230, Spring)	2021

Mentorship

2024-Present

Microbiology Ph.D. Rotational and undergraduate students

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 (\$1000) 2020 – 2022

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

Leidholdt Microbiology Summer Camp – Camp Mentor 2022, 2024, 2025

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 – Founding Section Member 2023-2025

Founding Section Member

Oregon Public Health Association

Portland, OR

Microbes and Social Equity Working Group – Member 2022-Present

Microbiology Graduate Student Association – President 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:** machine learning, multivariate regression, model building and selection, data visualization (Ggplot, plotly, R Shiny)
 - **Bioinformatics:** Nf-core pipelines, 16S sequencing, transcriptomics, metagenomics, metabolomics, phylogenetics, batch effect correction algorithms
 - **Molecular Biology:** zebrafish husbandry, DNA extraction, PCR, gel electrophoresis
 - **Other:** Microsoft Office Suite, Adobe Suite
 - **Languages:** English (Native), German (B2), Spanish (A1)
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