Michael J. Sieler Jr.

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EDUCATION

Oregon State University, Corvallis, OR — Expected Aug 2025
Ph.D. Microbiology. GPA: 3.95

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

RESEARCH APPOINTMENTS

Ph.D. 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

Ph.D. 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

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.

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., 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

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 – Panelist 2024
University of Wisconsin *Madison, Wisconsin*
"The Importance of Inclusive Practices in Microbiome Science"

WORKSHOPS

Microbiome Data Analytics Boot Camp – Trainer 2025
Skills for Health and Research Professionals (SHARP), Columbia University *Virtual (remote)*

"Planning, generating, and analyzing 16S rRNA gene sequencing surveys"

- Supported workshop participants in microbiome data analysis

Connecting Microbiome Communities – Trainer 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"

- Co-led workshop, prepared training and demonstration materials

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

- Led workshop, prepared training and demonstration

POSTERS

College of Science Graduate Science Research Showcase 2025
Oregon State University *Corvallis, OR*
"Modelling the Gut Microbiome's Resistance and Resilience to Climate Change and Infection in Zebrafish"

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 & 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, HMTL, 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)