

Douglas V. Guzior

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Education

2019-2024	Ph.D. Microbiology, Genetics, & Immunology <i>Dissertation:</i> Elucidating the mechanisms behind microbial bile acid conjugation and its impacts on host microbiota and physiology Mentor: Robert A. Quinn, Ph.D.	Michigan State University East Lansing, MI, USA
2015-2019	B.S. Microbiology, cum laude <i>Thesis:</i> Determining the impact of host-synovial fluid factors on <i>Staphylococcus aureus</i> aggregation Mentors: Paul Stoodley, Ph.D. and Sashwati Roy, Ph.D.	The Ohio State University Columbus, OH, USA

Additional Positions

Mar 2023	Visiting Graduate Researcher Mentors: Trevor Lawley, Ph.D. and Hilary Browne, Ph.D. <ul style="list-style-type: none">• Taught untargeted mass spectrometry experimental design, sample preparation, and analysis techniques• Collaborated on a project focused on identifying metabolic product differences in related <i>Bifidobacterium</i> species.	Wellcome Sanger Institute Cambridge, England, UK
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Bibliography

1. **Guzior DV**, Okros M, Shivel M, Armwald B, Bridges C, Fu Y, Martin C, Schillmiller A, Miller WM, Ziegler KM, Sims MD, Maddens ME, Graham SF, Hausinger RP, Quinn RA. 2024. Bile salt hydrolase/acyltransferase activity shapes bile acid diversity. *Nature*. [Accepted for Publication]
2. Chargo NJ, Patel K, Shashank R, Chougule A, **Guzior DV**, Regnery L, Gardinier JD, Quinn RA, Parameswaran N, McCabe LR. 2023. Dietary prune improves gut barrier function, alters gut microbiota composition, and improves bone density in healthy female mice. *Front Cell Dev Biol*. [Accepted for Publication]
3. Martin C, **Guzior DV**, Gonzalez CT, Okros M, Mielke J, Padillo L, Thomas R, McClelland M, Conrad D, Widder S, Quinn RA. 2023. Longitudinal microbial and molecular dynamics in the cystic fibrosis lung after Elexacaftor-Tezacaftor-Ivacaftor therapy. *Respir Res* **24**:317. doi: [10.1186/s12931-023-02630-z](https://doi.org/10.1186/s12931-023-02630-z)
4. Quinn RA, Martin C, **Guzior DV**. 2023. A multi-omic trip through the human gut. *Nat Metab* **5**:720–721. doi: [10.1038/s42255-023-00773-3](https://doi.org/10.1038/s42255-023-00773-3)
5. Neugebauer KA, Okros M, **Guzior DV**, Feiner J, Chargo NJ, Rzepka M, Schillmiller AL, O'Reilly S, Jones AD, Watson VE, Luyendyk JP, McCabe LR, Quinn RA. 2022. *Baat* gene knockout alters post-natal development, the gut microbiome, and reveals unusual bile acid conjugates in mice. *J. Lipid Res* **63**:100297. doi: [10.1016/j.jlr.2022.100297](https://doi.org/10.1016/j.jlr.2022.100297)
6. Ghuneim L-AJ, Raghuvanshi R, Neugebauer KA, **Guzior DV**, Martin C, Schena B, Feiner JM, Castillo-Bahena A, Mielke J, McClelland M, Conrad D, Klapper I, Zhang T, Quinn RA. 2022. Complex and unexpected outcomes of antibiotic therapy against a polymicrobial infection. *ISME J* **16**:2065–2075. doi: [10.1038/s41396-022-01252-5](https://doi.org/10.1038/s41396-022-01252-5)

7. Sosinski LM, Martin C, Neugebauer KA, Ghuneim L-AJ, **Guzior DV**, Castillo-Bahena A, Mielke J, Thomas R, McClelland M, Conrad D, Quinn RA. 2022. A restructuring of microbiome niche space is associated with Elexacaftor-Tezacaftor-Ivacaftor therapy in the cystic fibrosis lung. *J Cyst Fibros* **21**:996–1005. doi: [10.1016/j.jcf.2021.11.003](https://doi.org/10.1016/j.jcf.2021.11.003)
8. Wurster JI, Peterson RL, Brown CE, Penumutthu S, **Guzior DV**, Neugebauer KA, Sano WH, Sebastian MM, Quinn RA, Belenky P. 2021. Streptozotocin-induced hyperglycemia alters the cecal metabolome and exacerbates antibiotic-induced dysbiosis. *Cell Rep* **37**:110113. doi: [10.1016/j.celrep.2021.110113](https://doi.org/10.1016/j.celrep.2021.110113)
9. **Guzior DV**, Quinn RA. 2021. Review: microbial transformations of human bile acids. *Microbiome* **9**:140. doi: [10.1186/s40168-021-01101-1](https://doi.org/10.1186/s40168-021-01101-1)
10. Pestrak MJ, Gupta TT, Dusane DH, **Guzior DV**, Staats A, Harro J, Horswill A, Stoodley P. 2020. Investigation of synovial fluid induced *Staphylococcus aureus* aggregate development and its impact on surface attachment and biofilm formation. *PLoS ONE* **15**:e0231791. doi: [10.1371/journal.pone.0231791](https://doi.org/10.1371/journal.pone.0231791)

Conference Presentations

Talks

Guzior DV, Wu H, Martin C, Rzepka M, Neugebauer KA, Lumeng J, de los Campos G, Quinn RA. Developmental dynamics of the infant fecal metabolome. MANA 2023; October 2023; Columbia, MO.

Guzior DV, Quinn RA. Bile salt hydrolase aminoacyltransferase activity from gut anaerobes expands the human bile acid pool. Anaerobe 2023; July 2023; Cardiff, Wales, UK. *Awarded Best Offered Talk.*

Guzior DV, Quinn RA. Reversing Dogma: Bile Salt Hydrolase. Anaerobe Congress; July 2022; Seattle, WA, USA.

Posters

Guzior DV, Wu H, Martin C, Rzepka M, Neugebauer K, Lumeng J, de los Campos G, Quinn RA. Microbiome and metabolome dynamics during the first year of life. Poster presented at Great Lakes Pediatric Research Day; April 2023; Grand Rapids, MI.

Guzior DV, Quinn RA. Diversity and phylogenetic relationships of bile acid conjugation within the *Lachnospiraceae*. Poster presented at ASM Microbe; June 2022; Washington, D.C.

Guzior DV, Quinn RA. Analyzing the diversity of *in vitro* microbially conjugated bile acid products. Poster presented at the 3rd Annual Metabolomics Association of North America Conference; October 2021; Virtual.

Guzior DV, Das A, Roy S, Sen CK. Non-invasive preclinical porcine maxillofacial model to study excessive scarring of the face following burn injury. Poster presented at OSUMC Research Day; April 2019; Columbus, OH.

Guzior DV, Das A, Roy S, Sen CK. Non-invasive preclinical porcine maxillofacial model to study excessive scarring of the face following burn injury. Poster presented at the Denman Undergraduate Research Forum; April 2019; Columbus, OH.

Awards & Fellowships

2024	Dissertation Completion Fellowship, The Graduate School, Michigan State University
2023	Graduate School Travel Fellowship, The Graduate School, Michigan State University
2023	Ralph Evans Award, Department of Microbiology, Genetics, & Immunology, Michigan State University

2022-2023 Outstanding Scholar Fellowship, College of Natural Science, Michigan State University

2021 Philipp and Vera Gerhardt Award, Department of Microbiology, Genetics, & Immunology, Michigan State University

Professional Memberships

Metabolomics Association of North America

Anaerobe Society of the Americas

American Society for Microbiology

Microbiology Society

Leadership & Service

Leadership

2022-2024 Graduate Committee Representative, Department of Microbiology, Genetics, & Immunology, Michigan State University

Service

2015-Present Annual Fundraiser and Shavee, St. Baldrick's Foundation (over \$8,000 raised)

2022-2024 Graduate Student Mentor, Graduate Recruitment Initiative Team, Michigan State University

2020 Volunteer, Science Debate - MSU Chapter

2020 Donor, Be The Match

Skills & Expertise

- Targeted and untargeted metabolomics
- Heterologous gene expression, mutagenesis
- Enzyme kinetic characterization
- Leadership and mentorship
- Teamwork and collaboration
- Microbiome analysis
- Mixed-omic analysis
- R, Python coding languages
- Written and oral communication
- Statistics and data visualization