



MMI 291 Seminar Series

Current Theme: Collaborations
Spring Quarter 2023 – CRN 51609

Friday Seminar – 12:10-1 p.m. - Zoom

"Defining the role of the gut microbiome in mediating interactions between vertebrates and their environment"

Research Bio

Everyday humans and animals are bombarded by thousands of chemical, microbial, and nutritional exposures, many of which impact health. Growing evidence suggests that the microbiome plays an integral role in modulating the effects of these environmental exposures on the host physiology. A central focus in my lab is understanding the mechanisms through which the microbiome executes these functions. We conduct studies that span clinical and basic sciences leveraging high-throughput screens, statistical modeling, and cutting edge molecular techniques to identify environmental exposures capable of disturbing the taxonomic, genetic, and metabolic composition of the microbiome. By integrating host physiological and immunological measures into these studies, we detect interactions between microbiome operation and host physiology. Ultimately, we will apply the information gained in these analyses to identify biomarkers of exposure, elucidate microbial bioremediation pathways, and build microbial consortia that mitigate the impacts of exposure and promote health.

Publications

Gaulke CA, Martins ML, Watral VG, Humphreys IR, Spagnoli ST, Kent ML, Sharpton TJ. "A longitudinal assessment of host-microbe-parasite interactions resolves the zebrafish gut microbiome's link to *Pseudocapillaria tomentosa* infection and pathology". *Microbiome*. 2019 Jan 24;7(1):10. doi: 10.1186/s40168-019-0622-9. PMID: 30678738; PMCID: PMC6346533.

Gaulke CA, Schmeltzer ER, Dasenko M, Tyler BM, Vega Thurber R, Sharpton TJ. "Evaluation of the Effects of Library Preparation Procedure and Sample Characteristics on the Accuracy of Metagenomic Profiles". *mSystems*. 2021 Oct 26;6(5):e0044021. doi: 10.1128/mSystems.00440-21. Epub 2021 Oct 12. PMID: 34636674; PMCID: PMC8510527.

June
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Dr. Christopher Gaulke

Assistant Professor

Department of Pathobiology

University of Illinois Urbana-Champaign

**June 2, 2023
12:10 – 1 p.m.
ZOOM Meeting**

Medical Microbiology
and Immunology
School of Medicine

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We hope to see you there!