

### **Medical Microbiology and Immunology**

MMI 291 Seminar Series
Emerging Challenges in Microbiology and Immunology



## **MMI 291 Seminar Series**

Current Theme: Collaborations Spring Quarter 2023 – CRN 51609

Friday Seminar - 12:10-1 p.m. - Zoom

# "Commensal iron acquisition modifies host nutritional immunity during Salmonella infection."

**Research:** In his lab, they focus on the metabolic interactions that dictate the changes or resilience of the microbiota. Insight into such interactions would enable precise manipulation of gut microbiota composition, thus restoring a balanced community in situ and improving host health. To precisely manipulate the microbiota, they use a multidisciplinary discovery pipeline that consists of next-generation sequencing, bacterial genetics and a mechanistic understanding of bacterial physiology in vivo. This pipeline allows them to discover druggable targets of the microbiota and translate their finding using high-throughput screening.

The human gut microbiota is increasingly recognized as having essential functions in human health. However, the microbiota is constantly subjected to challenges such as intestinal inflammation, which drives the microbiota into a perturbed state that can exacerbate diseases. Therefore, microbial resilience, which maintains the structural and functional stabilities of the gut microbiome in the face of perturbations, is critical to host health. The overarching goal of my research program is to elucidate the molecular mechanisms that govern commensal resilience in the inflamed intestine.

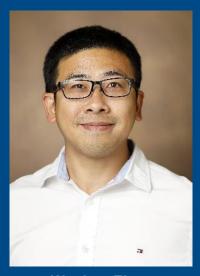
#### **Publications**

**Wenhan Zhu,** Naoteru Miyata, Maria G. Winter, Alexandre Arenales, Elizabeth R. Hughes, Luisella Spiga, Jiwoong Kim, Luis Sifuentes-Dominguez, Petro Starokadomskyy, Purva Gopal, Mariana X. Byndloss, Renato L. Santos, Ezra Burstein, and Sebastian E. Winter. 2016. "Editing of the gut microbiota reduces carcinogenesis in mouse models of colitis-associated colorectal cancer". *Journal of Experimental Medicine*. https://doi.org/10.1084/jem.20181939

Wenhan Zhu, Maria G. Winter1, Mariana X. Byndloss, Luisella Spiga, Breck A. Duerkop, Elizabeth R. Hughes, Lisa Büttner, Everton de Lima Romão, Cassie L. Behrendt, Christopher A. Lopez, Luis Sifuentes-Dominguez, Kayci Huff-Hardy, R. Paul Wilson, Caroline C. Gillis, Çagla Tükel, Andrew Y. Kohl, Ezra Burstein, Lora V. Hooper, Andreas J. Bäumler and Sebastian E. Winter. 2018. "Precision editing of the gut microbiota ameliorates colitis". *Nature*. doi:10.1038/nature25172

**Wenhan Zhu**, Maria G. Winter, Luisella Spiga, Daniel P. Beiting, Lora V. Hooper, Sebastian E. Winter. "Xenosiderophore Utilization Promotes Bacteroides thetaiotaomicron Resilience during Colitis". 2020, *Cell Host & Microbe*. Elsevier Inc. https://doi.org/10.1016/j.chom.2020.01.010

# May 26



Wenhan Zhu
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May 26, 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!