



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, Çağla Tükel, Andrew Y. Kohl, Ezra Burstein, Lora V. Hooper, Andreas J. Bäumlér 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

Assistant Professor
Pathology, Microbiology
and Immunology
Vanderbilt University Medical Center

May 26, 2023
12:10 – 1 p.m.
ZOOM Meeting

Medical Microbiology
and Immunology
School of Medicine

Seminar Contact:
Autumn Vega
530-752-9401
advenga@ucdavis.edu

We hope to see you there!