



MMI 291 Seminar Series

Current Theme: Interdisciplinary Research
Spring Quarter 2020 – CRN 73287

Friday Seminar – 12:10-1 p.m.



“*Helicobacter Pylori* Chemotaxis in the Stomach: Signaling Diversity and Niche Colonization”

Research

Chemotactic motility is important for *Helicobacter pylori* to persistently colonize the stomach. Like other bacteria, *H. pylori* uses chemoreceptors and conserved chemotaxis machinery to modulate flagellar rotational direction and allow bacteria to move toward beneficial compounds and away from harmful ones. Our lab has been working to identify the roles that flagella, chemotaxis and chemoreceptors play during the challenges *H. pylori* faces during life in the stomach. We found that *H. pylori* uses flagella both for motility and for adherence to cells and surfaces. Indeed, flagella seem to form a matrix-like material that promotes *H. pylori*-cell interactions. *H. pylori* expresses four chemoreceptors, which we've found each affect gastric colonization in distinct ways. Analyzing gastric colonization using detailed niche analysis in mouse models via a technique called bacterial localization in glands (BLIG) analysis, we have found that each chemoreceptors helps to control bacterial gland numbers at distinct times and places. Bacterial gland numbers positively correlate with inflammation, therefore, one function of chemotactic motility is to allow the bacteria to fine tune their numbers within an environment to prevent excess inflammation.

Publications

The Helicobacter pylori C2B Cytoplasmic Chemoreceptor TlpD Forms an Autonomous Polar Chemotaxis Signaling Complex That Mediates a Tactic Response to Oxidative Stress: A Randomised Crossover Study. Collins, K.D., Et al. J Bacteriol. 2016 May

Spatial and Temporal Shifts in Bacterial Biogeography and Gland Occupation during the Development of a Chronic Infection Keilberg, D., Zavros, Et al. mBio American Society for Microbiology. 2016 Oct

Control of bacterial colonization in the glands and crypts: Curr Opin Microbiol. Yang, C., Et al. Current Opinion in Microbiology. 2019 Nov

April
24



Karen Ottemann, Ph.D.

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**April 24, 2020
12:10 – 1 p.m.
ZOOM Meeting**

Medical Microbiology
& Immunology
School of Medicine

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We hope to see you there!