Hypersensitization of *Helicobacter pylori* to antibiotics through perturbation of bacterial glycan armor

William Rackear, Class of 2022

Bacterial glycans are a target of interest as a result of their critical role they play in pathogenesis.

were grown in the presence or absence of three established glycan altering agents: polymyxin B nonapeptide (PMBN), vancomycin, and Bac-diNAc-OBn (BnBac). These glycan altering agents perturbed different parts of the *H. pylori* glycocalyx. By growing the *H. pylori* in the presence or absence of these inhibitors, two had an untreated (control) condition and three experimental conditions. After the bacteria was grown and treated with glycan-altering agents, an Epsilometer test was performed to determine the minimum inhibitory concentration (MIC) of the FDA-approved antibiotic, levofloxacin. In each experimental condition, the MIC value was found to be lower than that of the control condition, signifying that a lower concentration of levofloxacin was needed to kill the *H. pylori* when treated with glycan altering agents. These data suggested that altering the glycan armor of *H. pylori* successfully hypersensitized it to levofloxacin and that this could be a viable strategy for fighting bacterial infections in the future. Of the three glycan altering agents, BnBac, which inhibited glycoprotein biosynthesis, was the most effective as it resulted in a lower MIC value and substanti re W* n BT /F3 12 Tf 7(e) most effective as,

In fact, the