

Helicobacter pylori Exhibits a Fur-Dependent Acid Tolerance Response

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Background: *Helicobacter pylori* colonizes the acid environment of the gastric mucosa. Like other enteric bacterial pathogens, including *Salmonella enterica*, which must survive a brief exposure to that environment, *H. pylori* displays a rapid response to subtle changes in pH, which confers an increased ability to survive at more extreme acidic pH. This two-step acid tolerance response (ATR) requires de novo protein synthesis and is dependent on the function of the global regulatory protein Fur. **Objective:** We have explored the physiological bases of the ATR in *H. pylori*. **Materials and Methods:** Proteomic analysis of phenotypes of *H. pylori* and fur mutant strains show that subtle pH changes elicit significant changes in the pattern of proteins synthesized. **Results:** A loss-of-function mutation in the fur gene, obtained by insertion of an antibiotic resistance cassette, indicated that Fur regulates the expression of a fraction of *H. pylori* proteins. **Conclusion:** A subset of proteins is involved