



Article

Probiotic *Lactobacillus* spp. act Against *Helicobacter pylori*-induced Inflammation

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Abstract: The bacterial species, *Helicobacter pylori*, is associated with several gastrointestinal diseases, and poses serious health threats owing to its resistance to antibiotics. *Lactobacillus* spp., on the other hand, possess probiotic activities that have beneficial effects in humans. However, the mechanisms by which *Lactobacillus* spp. harbor favorable functions and act against *H. pylori* infection remain to be explored. The aim of this study was to investigate the ability of bacterial strains, *Lactobacillus rhamnosus* and *Lactobacillus acidophilus*, termed GMNL-74 and GMNL-185, respectively, to inhibit *H. pylori* growth and inflammation. Our results showed that GMNL-74 and GMNL-185 possess potent antimicrobial activity against multidrug resistant (MDR)-*H. pylori*. In addition, an in vitro cell-based model revealed that the inhibition of *H. pylori* adhesion and invasion of gastric epithelial cells and interleukin-8 production were significantly decreased by treatment with both the *Lactobacillus* strains. In vivo studies demonstrated that colonization of *H. pylori* and induced inflammation in the mouse stomach were also alleviated by these *Lactobacillus* strains. Furthermore, the abundance of beneficial gut bacteria, including *Bifidobacterium* spp. and *Akkermansia muciniphilia*, were significantly increased in *H. pylori*-infected mice treated with GMNL-74 and GMNL-185. These results demonstrate that *Lactobacillus* spp. ameliorate *H. pylori*-induced inflammation and supports beneficial gut specific bacteria that act against *H. pylori* infection.

Keywords: *Helicobacter pylori*; *Lactobacillus*; probiotic; inflammation