

2nd International Conference and Exhibition on **Probiotics & Functional Foods**

October 23-25, 2013 Holiday Inn Orlando International Airport, Orlando, FL, USA

Autoinducer-2 associated inhibition by *Lactobacillus sakei* NR28 influences pathogenicity of Enterohemorrhagic *Escherichia coli* O157:H7

Hyunjoon Park Handong Global University, Korea

B acteria use quorum sensing (QS) to regulate specific target gene expression. Some pathogenic bacteria have a LuxS/AI-2 Signal system as a mechanism of controlling their pathogenicity. Enterohemorrhagic *Escherichia coli* O157:H7 (EHEC) also uses AI-2 signaling for expression of its virulence factors. As potential antimicrobial target, the signal system presents an interesting challenge and a new scope for treatment or prevention of infections by EHEC. Probiotic lactic acid bacteria (LAB) are one of the primary candidates for appropriate AI-2 inhibitors, because of their general acceptability, safety and adaptation to either the intestinal and/or food ecosystem. In this study, we selected *Lactobacillus sakei* NR28, a putative probiotic strain isolated from Korean traditional fermented food kimchi, as an AI-2 related quorum quenching strain. AI-2 activity and its associated virulence factors of EHEC were reduced significantly by *L. sakei* NR28, while the cell viability was not affected. We also used the purified AI-2 molecule, a *luxS*-deficient EHEC strain, and *Citrobacter rodentium* AI-2, an independent EHEC mimicking strain, to evaluate the relationship of the effect of *L. sakei* NR28 on virulence reduction and on AI-2 inhibition. The results showed that *L. sakei* NR28 has an inhibitory effect on the pathogenicity of EHEC by AI-2 signal interference.

Biography

Hyunjoon Park is studying Food Microbiology as Ph.D. candidate at Handong Global University, Korea. His passionate interests are health promoting effect of probiotics, microbial food safety and hygiene, and bacterial quorum sensing and quorum quenching.

hyunjuns@hanmail.net