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Lactobacillus plantarum suppress intestinal allergic responses by regulating cytokine production

Kwang Woo Hwang, Kyeong Eun Hyung, Yun-Jung Lee, Soo Jeong Kim and Ye-won Jang Chung-Ang University, South Korea

I thas become important that commensal organisms can interact with mucosal immune cells or epithelial cells to adjust the mucosal immune system. Probiotics is raised up new preventive or therapeutic methods making many immunological diseases because it is able to beneficially change the composition of intestinal micro-flora. In this study, Lactobacilli sp. isolated from Kimchi, traditional fermented Korean food were tested for their capacity to modulate intestinal allergy in mice. Intestinal allergy was developed through oral OVA challenge in OVA-sensitized mouse and lactic acid bacteria were orally administered. *Lactobacilli* suppressed the destruction of villi and the recruitment of mast cells in the small intestine. Moreover, serum IgE levels were lowered in *Lactobacillus* administration group and the gene expressions of Th2 response associated transcription factor and cytokines such as GATA3, IL-4, IL-5 and IL-9 were significantly decreased in the small intestine tissue. *Lactobacilli* also alleviate allergic reaction by down regulating the gene expression of FcR1 and mMCP-1, which mediated mast cells action. As a result of the study change in the various cytokine expressions, the gene expression of IL-21 is greatly increased by *Lactobacillus plantarum*. It is suggest that lactic acid bacteria provoke IL-21-mediated regulation of IgE. Moreover, IL-2 reduction was shown by the lactic acid bacteria administration, which is expected to the cause for diminishing Th2 differentiation. Conclusively, *Lactobacilli* from kimchi exhibited prophylactic potential for intestinal allergic symptoms in mice through suppressing Th2 responses and modulating cytokine productions.

Biography

Kwang Woo Hwang has completed his PhD from Illinois Institute of Technology at Chicago and Post-doctoral studies from University of Chicago School of Medicine. He is the division Director of Infectious Microbiology and Pharmaceutical Immunology at The Pharmaceutical Society of Korea.

khwang@cau.ac.kr

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