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Safety and immune-boosting effect by cytokine expression of *Lactobacillus johnsonii*, isolated from mouse intestine

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Lactobacillus are normal components of healthy human intestinal microbial flora and frequently used for fermentation of food products. These bacteria are believed to be Generally Recognized as Safe (GRAS). Also, *Lactobacillus* is known as probiotics, for enhancement of immunity and maintenance of the intestinal microbial balance and prevention of infection. The mechanisms of enhancing immunity are varied including enhancement of IgA secretion, cytokine expression regulation. However, some of *Lactobacillus* was not safe, but pathological. Although most probiotics seem safe, information about these contents is limited and debates are ongoing. For this reason, safety assessment of bacteria is most important before applied into food production. Therefore, we need to confirm safety and immune response of bacteria. *Lactobacillus johnsonii* was isolated from mice intestine. *Lactobacillus paracasei* ATCC334 was provided from DR. Jos Seegers (Falcobio, Netherlands) as control. Two strains of *Lactobacillus* were orally administrated to mice to determine safety and retention time for colonization. Body weight, feed intake, organ weight, AST and ALT level in serum showed no significant differences among experimental groups. Bacterial translocation was not detected *via* blood and organs. Also, isolated bacteria remained longer than control bacteria in mice intestine. Additionally, immune-boosting ability of this isolate in gut tissues was measured using several cytokines by quantitative real-time PCR. Cytokine expression was increased dramatically in mice which was fed *Lactobacillus* compared with control mice. This study demonstrated that two strains of *Lactobacillus* were safe and they could enhance host immunity.

Biography

Dongjun Kim is a Doctoral student in Sungkyunkwan University, South Korea and has received his Bachelor's degree from the same university. His present research is about *Lactobacillus* delivering anti-viral protein and *Lactobacillus* promoter engineering for enhancing protein expression in intestinal *Lactobacillus*.

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