

Lactobacillus plantarum Inhibits Mouse Colonic Inflammatory Response by Activating NLRP6

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Many experimental with animal models, clinical trials, and cell culture studies they have been confirmed that *Lactobacillus plantarum* has the ability to inhibit the inflammatory response, however, its mechanism to inhibit the inflammatory response is unclear. In this study we used LPS to treat BMDM and then added *Lactobacillus plantarum* in it. The results suggest that *Lactobacillus plantarum* could promote the expression of NLRP6 in BMDM cells and form inflammatory complexes with Caspase-1 and ASC, which inhibit the secretion of extracellular interleukin (IL)-1 β , and promote the secretion of extracellular IL-18. We also used siRNA to interfere with the expression of NLRP6 in BMDM, the result showed that promote the secretion of IL-1 β and inhibit the secretion of IL-18. Importantly, pre-inoculation with *Lactobacillus plantarum* can effectively attenuate DSS-induced colitis in mice through the result of colonic scoring, colon pathological changes and weight loss indicators. In conclusion, *Lactobacillus plantarum* inhibits the inflammatory response by activating the Nod-like receptor (NLR) family member, NLRP6. This study has laid the foundation for the application of lactic acid bacteria in the treatment of colitis.

Biography:

Professor Wang graduated from Jilin Agricultural University with master's degree in Preventive Veterinary Medicine. Then she attended China Agricultural University to earn the Ph.D. degree. After the doctoral career in Beijing, she was admitted to Harvard University to pursue her post-doctoral research. During the last two decades, she has devoted herself in the research work for the development of novel animal micro ecological agents, construction of a mucosal delivery platform to express heterologous proteins utilizing engineering lactic acid bacteria which have been regarded as safe microorganisms, exploration of molecular immune mechanisms for the new functional lactic acid bacteria, preparations of environmentally friendly animal micro ecological formulations. All the initial innovative academic achievements have been published in the journals, such as Cell Transplantation, Virology, and Scientific Reports.