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Bovine Lactoferrin: benefit and mechanism of action against infections

Koji Yamauchi, Hiroyuki Wakabayashi, Kouichirou Shin, Mitsunori Takase

ABSTRACT

Ingestion of bovine Lactoferrin (bLF) has been reported to show anti-infective, anti-cancer, and anti-inflammatory effects. In particular, it has become evident that oral bLF had a beneficial effect on infections of both digestive and nondigestive tract issues in various animal models. Furthermore, the effects of bLF have been indicated in clinical studies on patients with Helicobacter Pylori infection, chronic hepatitis C, tinea pedis, and other diseases. Immunomodulation of the intestine and systemic sites has been suggested to mediate the protective effects of oral bLF against infection. Recently, we demonstrated the beneficial effects of oral bLF in influenza virus infected mice. BLF administration reduced the lung consolidation score and the number of infiltrating leukocytes in bronchoalveolar lavage fluid. We also investigated the effect of oral bLF on the transcription genes related to immunity in the small intestine of mice using the RT-PCR method. We found that intake of bLF increased the expression of IL-12p40, INF-β, and NOD2. Thus, oral bLF activates the transcription of important immune-related genes in the small intestine, and such transcription activation may promote systemic host immunity.