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Effect of Dietary Lactosucrose (4^G - β -D-Galactosylsucrose) on the Intestinal Immune Functions in Mice

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Lactosucrose (4^G - β -D-galactosylsucrose, LS) is suggested to be an oligosaccharide required for the proliferation of Bifidobacteria in the intestine. We have examined the dietary effects of LS on the intestinal immune function of mice. BALB/c mice were fed with 2 and 5% LS for 4 weeks, and the intestinal mucosal immune responses were determined. In the 2 and 5% LS fed groups, the amounts of IgA in feces and in cecum contents were significantly increased. In addition, IgA, transforming growth factor- β 1 (TGF- β 1) and interleukin-6 (IL-6) secretion by Peyer's patch (PP) cells were enhanced in LS fed mice. In LS fed mice, pH in the cecum was decreased. LS, in addition, suppressed serum IgG1. These results suggest that LS supplementation changes the intestinal environment of microflora, and indirectly enhances the immune function in the gut, and suppresses the systemic immune response to the dominant type 2 helper T (Th2).

Key words: lactosucrose, IgA, TGF- β 1, IL-6, IgG1

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