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Effects of 1-Kestose and Nystose on the Intestinal Microorganisms and Immune System in Mice

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We investigated the effects of the major short chain fructooligosaccharides, 1-kestose and nystose, on the intestinal microorganisms and on the intestinal and systemic immune responses of mice. Both 1-kestose and nystose promoted intestinal *Lactobacillus* number. However, the balance of *Lb. reuteri* and *Lb. intestinalis*, the major *Lactobacillus* species in the mice was not altered. The IgA content in the feces of mice treated with both 1-kestose and nystose increased from day 4 to day 7 after starting the administration and returned to the same level of control mice on day 14. Splenocyte responses to Con A, anti-CD3 plus anti-CD28 antibodies and LPS were reduced by 1-kestose and nystose. Nystose lowered IL-2, IFN-γ, IL-12 and IL-4 secretion from the splenocytes more than 1-kestose. These results suggested that both 1-kestose and nystose can influence the microorganisms as well as the intestinal and systemic immune responses, but to different degrees.

Key words: fructooligosaccharide, 1-kestose, nystose, intestinal microorganisms, *Lactobacillus*, immune system

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