Lactobacillus reuteri induces intestinal immune tolerance against food allergy in mice

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ABSTRACT

The effect of Lactobacillus reuteri against food allergy was investigated in ovalbumin (OVA)-sensitized BALB/c mice. Oral administration with L. reuteri restored the deteriorated profile of enteric flora, and attenuated allergic diarrhoea, mast cell activation, and serum IgE production in allergic mice. The production of signature T helper (Th)1 and 2 cytokines, namely IFN-γ and IL-4, by splenocytes was suppressed by L. reuteri. Concordantly, the intestinal expression of IFN-γ, IL-4, T-bet and GATA3 was down-regulated. However, L. reuteri augmented the expression of IL-10, TGF-β and Foxp3, and the number of IL-10- secreting CD11c+CD103+ mesenteric lymph node (MLN) cells. Furthermore, direct exposure to heatkilled L. reuteri attenuated OVA-induced cell proliferation and IL-2 secretion by MLN cells. These results demonstrate that L. reuteri possesses anti-allergic activities via modulating enteric flora and promoting tolerogenic immune responses, and suggest L. reuteri as a functional probiotic against food allergy.

Keywords: Food allergy, Lactobacillus reuteri, Regulatory T cell, Tolerogenic dendritic cell

REFERENCES


