

# Probiotics and immunological disorders

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## INTRODUCTION

Probiotics are defined as live microorganisms that have positive health effects to the host. Numerous evidences indicate that selected probiotic strains can provide health benefits to the human host. Most of the positive effects of the probiotics are on the gastrointestinal system. Moreover, studies have shown that probiotics exert beneficial effects to the immune system. The purpose of this review was to explore among the reported effects of different probiotic strains to the immune system, specifically in allergy.

## RESULTS

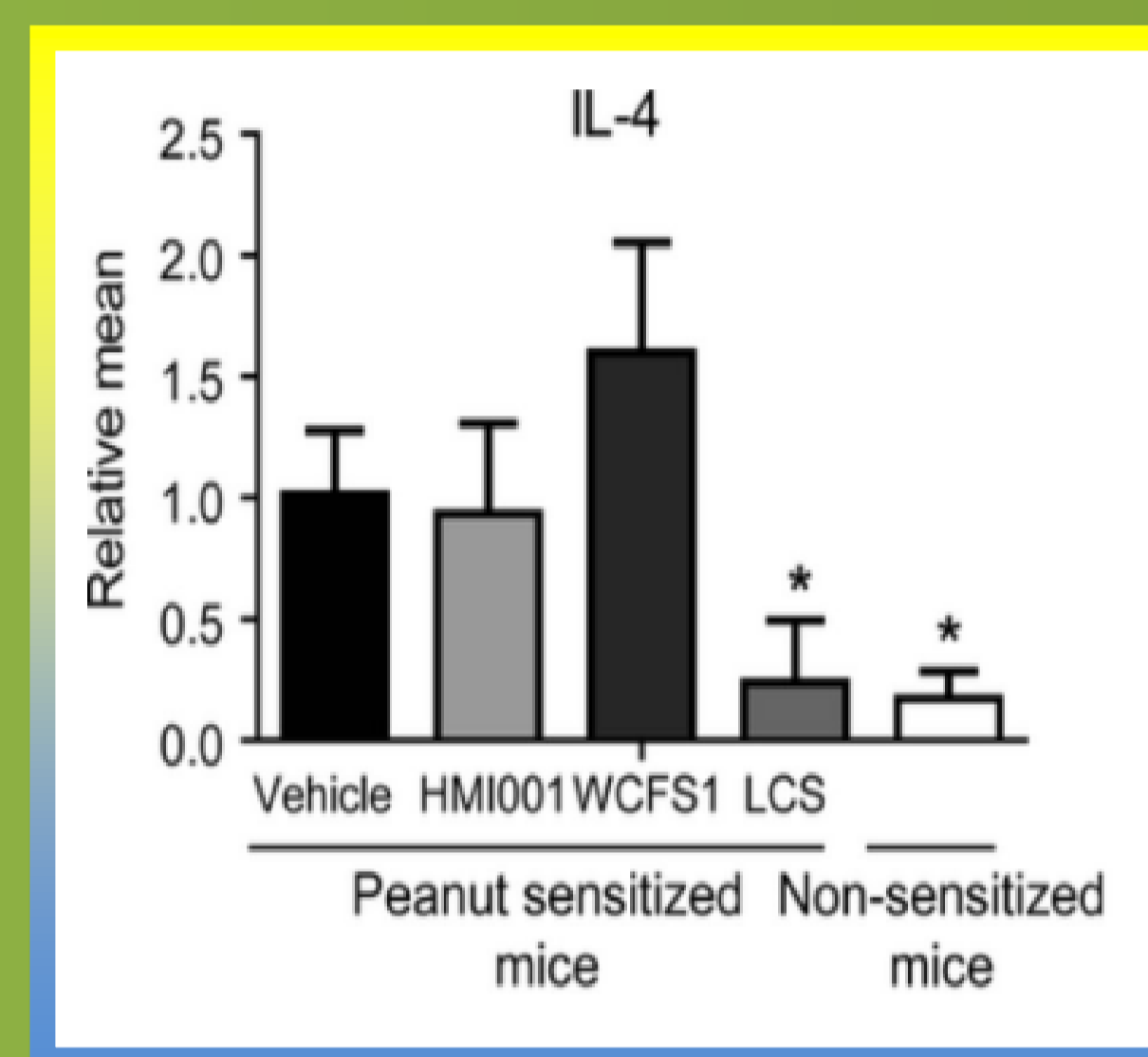
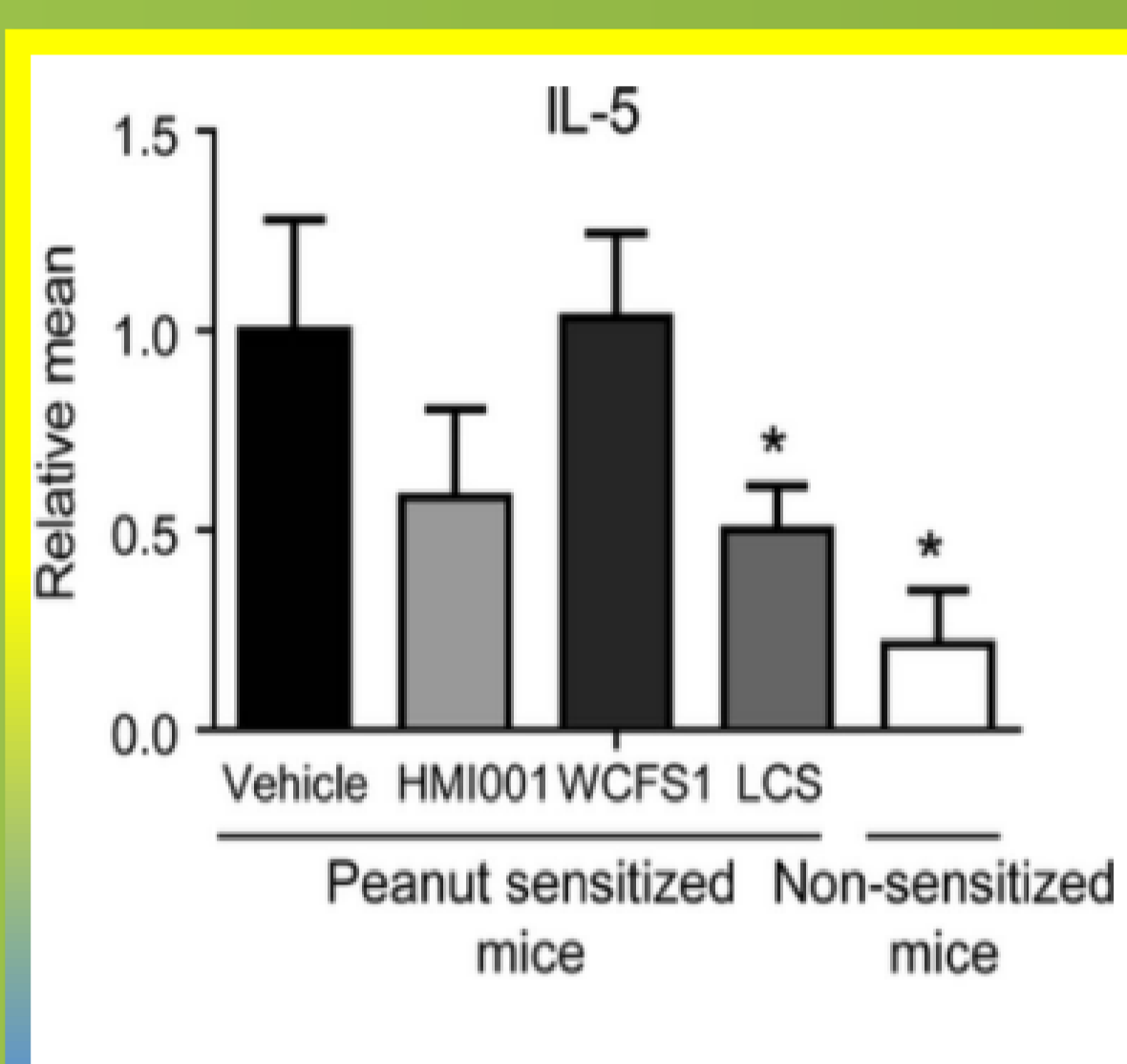
In groups of 8, mice were exposed to peanut extract and cholera toxin. The levels of IL-4 and IL-5 had been examined, using ELISA techniques. The probiotic strains were isolated from:

HMI001: *L. salivarius* from human breast milk

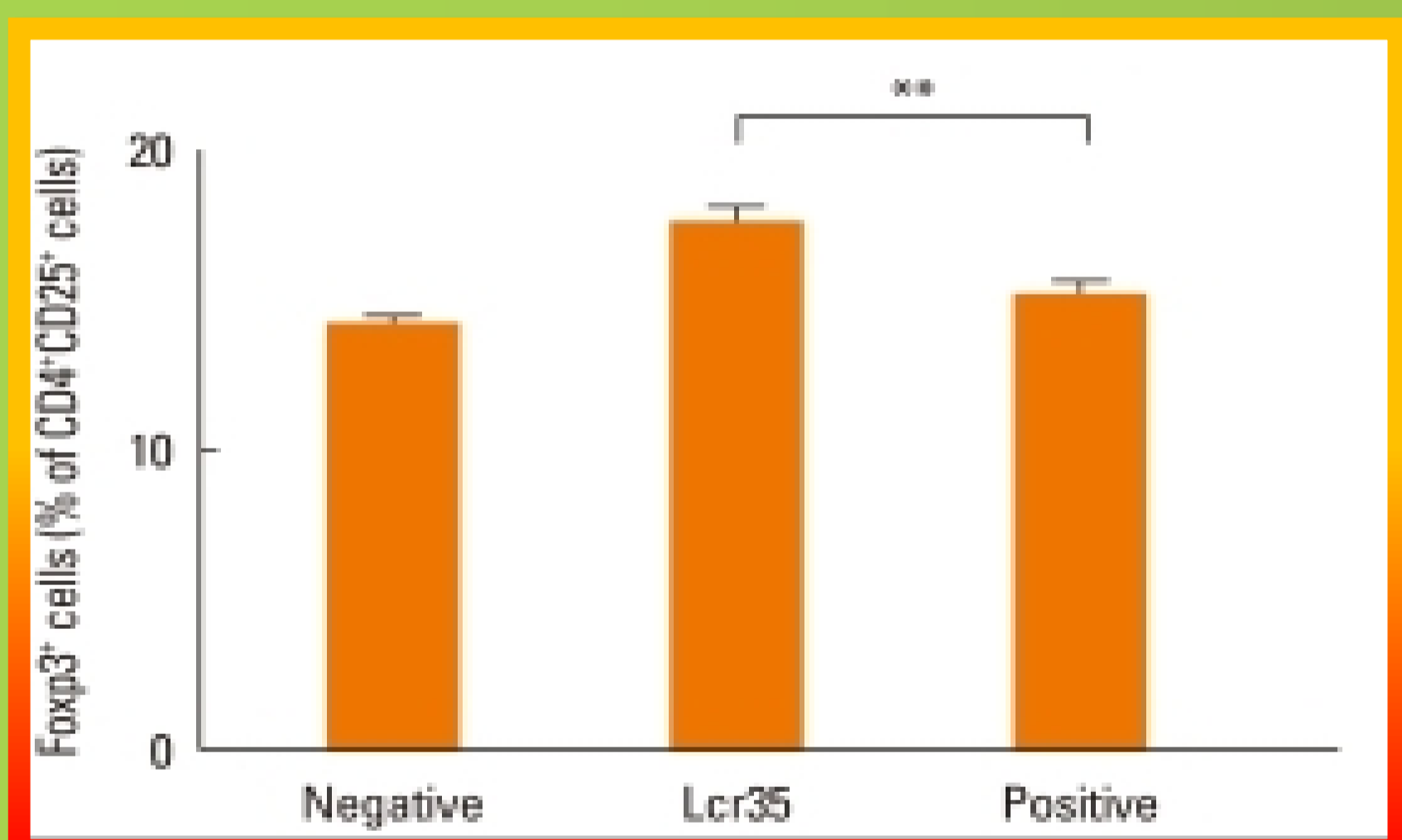
WCFS1: *L. plantarum* isolated from saliva

LCS: *L. casei shirota*.

The results showed different activity of all three probiotic strains to the levels of IL-4 and IL-5



Meijerink, M et al. J. 2012. Immunomodulatory effects of potential probiotics in a mouse peanut sensitization model. FEMS Immunol Med Mic. 65(3): 488-496.



Jang et al. 2012. Asthma Prevention by Lactobacillus rhamnosus in a Mouse Model is Associated With CD4+ CD25+ Foxp3+ T Cells. Allergy Asthma Immunol Res. 4(3):150-156.

Effect of *L. rhamnosus* on CD4+CD25+Fxp3+ Treg cells in mice were studied after sensitization with ovalbimin/alum mixture.

Positive group: OVA sensitization

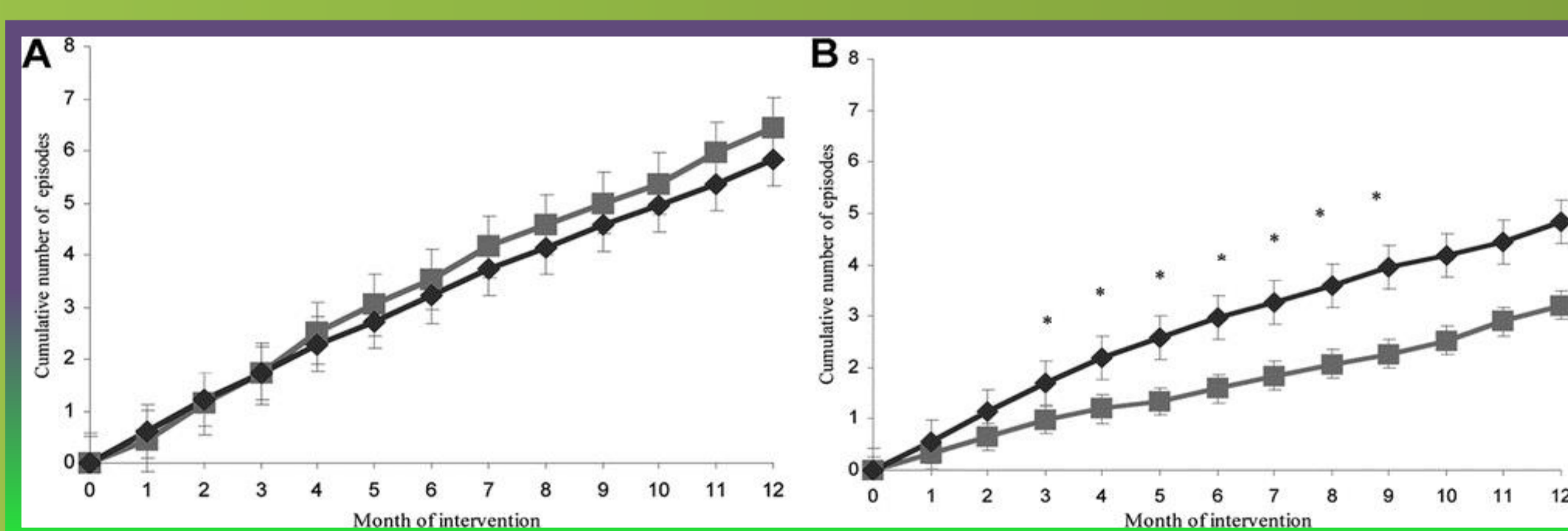
Negative group: saline

The results showed that Lactobacillus rhamnosus treatment led to a significant increase in CD4+CD25+Fxp3+ Treg cells

The effect of administration of Lactobacillus casei fermented milk in 187 asthmatic children aged 2 to 5 years for 12 months.

Graph A – effect in asthma, Graph B – treating allergic rhinitis.

The results have shown that in children with asthma no difference between treated and control groups was found. In children with rhinitis, a significant difference between groups as noticed.



Giovannini M et al 2007. A Randomized Prospective Double Blind Controlled Trial on effects of Long-Term Consumption of Fermented Milk Containing Lactobacillus casei in Pre-School Children With Allergic Asthma and/or Rhinitis. Pediatr Res. 62, 215-220.

## CONCLUSION

Many studies are trying to unveil the mechanisms of probiotic involvement and their beneficial effects to the health. Animal studies and clinical trials in different populations regarding different medical conditions, present effects that are somewhat controversial. In this context, as our literature research resulted, many of the evidences regarding immunological (allergic) diseases present weak or minimal effects.