

中文題目：益生菌刺激老鼠脾臟細胞造成Th1活化反應

英文題目：Probiotics induce murine splenocyte toward Th1 activation

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Background: Lactobacillus and Bifidobacterium are the most common microbes used as probiotics. Although probiotics are good for mucosal immunity in the gut, it remains unclear how intestinal mucosal immunity reacts to probiotics.

Aims:

Methods: Three strains of Lactobacillus, *L. paracasei* 33, *L. casei* 01 and *L. paracasei* D11a, and three strains of Bifidobacterium, *B. lactis* Bb12, *B. lactis* HN019, and *B. longum*, were used in this study. Multiplicity of infection (MOI) 30 of each strain was applied to the experiments. The splenocytes were isolated from C57Bl6 mice. Culture supernatant was collected for ELISA. Cell pellets were collected from real-time PCR.

Results: We examined the expression of the 8 cytokines, namely IFN γ , TNF α , IL-4, 5, 6, 10, 12 and 17, after the six strains of probiotics were co-cultured with splenocytes for 12, 24 and 48 hrs. No expression of IL4 and 5 were detected in both groups, whereas the levels of IL-6 and 17 were similarly low in both groups. The level of IL12 was higher in Lactobacillus group than Bifidobacterium group at each time point ($p < 0.05$). The expression of IL-10, IFN γ and TNF α reached significantly high level at 48 hrs in both Lactobacillus and Bifidobacterium groups. This was compatible with the 8-fold higher expression of T-bet, which is a Th1 cell specific transcription factor, at 48 hrs.

Conclusions: Both Lactobacillus and Bifidobacterium induce murine splenocytes toward Th1 expression, especially after 48 hrs' co-culture. However, whether these results collectively exert pro-inflammatory or immunosuppressive effects in vivo awaits further validation. Acknowledgement: Excellence for cancer research center grant, DOH100-TD-C-111-002, Department of Health, Executive Yuan, Taiwan, ROC.