

Distribution of CD4 and CD8 T cells in the small intestine of mice after probiotic treatment and *Trichinella spiralis* infection

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Important components of the intestinal mucosal immunity are free intraepithelial and *lamina propria* lymphocytes involved in the regulation and activity of the immune response. This study detected the presence of CD4 and CD8 T cell subsets in the small intestine of mice treated with probiotic strains and infected with *T. spiralis*.

Bacteriocinogenic and probiotic strains of different origin (*Enterococcus faecium* AL41=CCM8558, *Enterococcus durans* ED26E/7, *Lactobacillus fermentum* AD1=CCM7421, *Lactobacillus plantarum* 17L/1) were administered daily in dose of 10⁹ CFU/ml in 100 µl and mice were infected with 400 larvae of *T. spiralis* on 7th day of treatment.

No differences in the occurrence of CD4 T helpers were found in the epithelium, but the presence of cytotoxic CD8 T cells was significantly increased after the administration of all probiotic strains, with the greatest effect after *E. faecium* AL41=CCM8558 and *E. durans* ED26E/7. A reverse representation of CD4/CD8 subpopulations was found in the *lamina propria*, where the CD4 T cells were significantly increased after *Lactobacillus fermentum* AD1=CCM7421 and *L. plantarum* 17L/1. The CD8 T cell numbers were inhibited. The translocation of cytotoxic CD8 T cells from the *lamina propria* to the epithelial layer could contribute to anti-parasite defence and reduce parasite burden in the host. The greatest protective effect against adults (65 % reduction) was presented by *Enterococcus faecium* AL41=CCM8558. A significant decrease in the number of muscle larvae was detected in all treated groups (reduction 55 %). The index of reproductive capacity in untreated mice (97–107) was significantly above the values found in mice treated with probiotic strains (35–78). The obtained results confirmed the strain-specific immunomodulatory effect of probiotic bacteria.

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