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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