

## **Trichinellosis in mice: changes in the expression of Toll-like receptor 4 (TLR4) during the intestinal phase of experimental trichinellosis**

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The Toll-like receptors (TLRs), inducing of the inflammatory responses, play a key role in a rapid activation of the innate immune response to a variety of pathogens. TLR4 is the one of the best known transmembrane receptor and the most extensively analyzed members of the TLR family. To date, a protective role TLR4 against parasitic infection is well documented in the case of some protozoan parasites, but not in the case of helminthic parasites.

Therefore, the aim of this study was to examine the effect of *T. spiralis* infection on the level of expression of TLR4 gene in mouse intestines during the intestinal phase of experimental trichinellosis. The experimental material consisted of the small intestines isolated from BALB/c mice, infected with about 400 *T. spiralis* larvae strain ISS003. The expression of TLR4 gene in the uninfected and *T. spiralis*-infected mouse intestines was determined both on the mRNA level (using quantitative real-time polymerase chain reaction) and on the protein level (using immunohistochemical staining).

In the jejunum from infected mice isolated on the 4, 8 and 16 days post infection (dpi) we observed a statistically significant increase in the level of expression of TLR4 genes compared with the uninfected control. Particularly, the level of expression of TLR4 was significantly higher at 8 dpi. Moreover, in the crypts of small intestine from infected mice we observed stronger positive reaction for present TLR4 at 3 and 4 dpi.

Based on our results, we may speculate that infection with *T. spiralis* modifies the expression of TLR4 in the small intestine of the host. Furthermore, demonstration for the first time of the presence in the small intestine from *T. spiralis*-infected mice of both TLR4 mRNA and its protein, suggests the contribution of this receptor to the host defence mechanisms during experimental trichinellosis. Moreover, increased level of TLR4 expression in infected mice may suggests the involvement of this TLR in the recognition of *T. spiralis* pathogen-associated molecular patterns (PAMPs).