The Modulation of Transferrin Receptors Level on Mouse Macrophages and Fibroblasts by Toxoplasma gondii

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Abstract

Macrophage-mediated early nonspecific immunological response is an important part of the immunity against intracellular parasite Toxoplasma gondii. The immunological functions of macrophages are closely connected with iron metabolism and acquiring of iron mainly from transferrin by the receptor-mediated endocytosis. The level of specific transferrin receptors can be modulated by different soluble exogenous and endogenous factors and also by microbial pathogens. The goal of our study was to determine the influence of T. gondii infection and toxoplasma lysate antigen (TLA) on the expression level of transferrin receptors (TfRs) on mouse macrophages and fibroblasts which can serve as host cells for the parasite replication. The level of TfRs was measured using CELISA assay. Strong down-regulation of the receptors level, which started about 18 hours postinfection, was found after infection of macrophages with a high number of freshly harvested tachyzoites of T. gondii whereas stimulation of the mouse cells with TLA antigen did not cause any changes in the examined TfRs expression. In our studies we did not observe any differences in the TfRs level on mouse fibroblasts even when they were incubated with high concentrations of TLA antigen or inoculated with a high number of tachyzoites.