Abstract

Both species of tapeworm, Taenia crassiceps and Mesocestoides corti, are used in biomedical research. Their exceptional attributes make them suitable model organisms for various forms of neurocysticercosis. Moreover, their ability to affect the metabolism and immunity of their hosts represents a potential cure for various autoimmune diseases, such as type 1 diabetes or multiple sclerosis, and various types of cancer, such as melanoma or breast cancer. The immunomodulatory capabilities of helminths and their mechanisms, which have been known for some time already, have recently commanded researchers' attention to their effect on the host organism's inflammatory reactions, including the enhancing impact of their products on the immune response. Current research is seeking to reveal the effects and underlying mechanisms of these helminth abilities and to discover further diseases, in which they could be applied. This review summarizes the reasons these cestodes are used as models, the effects of cestode infection on the host organism, and their use in neurocysticercosis study. Also, various examples where primarily T. crassiceps shows to be a potential candidate for the development of new treatments or the improvement of those already in use will be mentioned.

Key words: Taenia crassiceps, Mesocestoides corti, neurocysticercosis, immunomodulation, type 1 diabetes, multiple sclerosis, melanoma