Abstract

The process of encystation is a vital and important part of life cycles of many organisms. One of them is *Giardia intestinalis*, a significant single cell parasite of vertebrates, including man. During the process of encystation there are unusual organelles, called encystation vesicles. These serve to accumulate material for the future cyst wall.

The main proteins found in encystation vesicles that compose the cyst wall, are CWP1, CWP2 and CWP3. This work is focused on these proteins. The structure and properties of these proteins were used to study the main aim of this work, that is the identification of other proteins associated with the encystation vesicles.

In the experimental part, a system was created, that allows targeted characterization of proteins and cell compartments, by utilization of biotin ligase of *Escherichia coli*. For this systém, we created specific constructs, that were successfully inserted into plasmids and into *G. intestinalis cells*. For the intention of cloning, a method of direct site mutagenesis was optimalized. The expression of chosen proteins was detected successfully during the *in vitro* encystation. Aside, it was proven that CWP1 forms complexes with an unknown protein. This work relates the composition of cyst wall of *G. intestinalis* with other components identified in other parasitic protists.