

Abstract

Free-living microaerophilic protist *Trimastix pyriformis* is closely related to oxymonads which are the largest eukaryotic group without any known mitochondrion. In contrast to oxymonads, an enigmatic reduced mitochondrion has been found in the cell of *T. pyriformis*. In EST data of *T. pyriformis*, a number of genes has been identified whose products are putatively localized in the mitochondrion. Among these are genes for all the components of the glycine cleavage system, [FeFe]hydrogenases and the mitochondrial marker Cpn60. We performed experiments in order to determine the cellular localization of these proteins. Our results show that the glycine cleavage system is localized in the mitochondrion. Results of the experiments carried out in order to localize two hydrogenases suggest also the mitochondrial localization but are not fully convincing. The attempt to localize Cpn60 has failed. We have also identified a set of new genes in transcripts of *T. pyriformis* and *Monocercomonoides* sp. (Oxymonadida). These genes code for some components of the SUF system of FeS cluster synthesis and a peroxidase rubrerythrin.

Key words: *Trimastix*, *Monocercomonoides*, mitochondrion, hydrogenosome, mitosome, hydrogenase, glycine cleavage system, SUF system.