

## Abstract

Even though mitochondria possess their own genome and ribosomes, majority of mitochondrial proteins is encoded in the nucleus and translated by cytosolic ribosomes. Hence it was necessary to establish transport complexes allowing the import of proteins from the cytosol. These complexes are best described in yeast. However, we are encountering organisms lacking many of the subunits of these complexes with increasing frequency. Therefore, we are presenting the overview of the distribution of the subunits within eukaryotic organisms. We specifically take a closer look at parasitic protist *Giardia intestinalis* that is well known for its extreme reductions of the import complexes. There have been only few subunits identified so far. Porin Tom40, that is responsible for translocating all the incoming proteins across the outer mitochondrial membrane, has been identified despite the high divergence, while homolog of Sam50 hasn't been successfully identified yet. Sam50 is however believed to be necessary for insertion of Tom40 into the membrane. Vast part of this thesis is dedicated to this phenomenon that is highly uncommon and maybe unique among the eukaryotic organisms.