

*Giardia intestinalis* and *Trichomonas vaginalis* are parasitic protists living in the environment without oxygen. For this reason, their mitochondria were transformed into organelles lacking the oxidative phosphorylation. We do not know anything about the intermembrane space (IMS) of these mitochondrial organelles. Main reason is that it is hard to isolate IMS proteins using the classical methods of the molecular biology, as cell fractionation.

Recently, the new ascorbate peroxidase (APEX) tag has been developed. This tagging is suitable for the fluorescence as well as the electron microscopy. APEX can also behave like biotin ligase when exposed to biotin-phenol and this allows the labeling of the proteins of the compartment as well as their isolation.

We optimized the conditions for optimal APEX activity and using this technique we were able to visualize the IMS of hydrogenosomes of *T. vaginalis* and to isolate hydrogenosomal proteins.