

ABSTRACT:

The system of oxidative phosphorylation, or respiratory chain in mitochondria gives the eukaryotic cell total majority of the energy it receives and uses in the form of ATP. F_1F_0 -ATP synthase, powered by the proton-motive force is directly responsible for the ATP synthesis. Diseases connected to the ATP synthesis can have even lethal consequences. There is therefore no doubt about the need for a detailed analysis of the structure of this enzyme. What is left is to reveal the structure of the transmembrane domains, which are not involved in the synthesis itself, but they can for example work as stabilisers or assembly factors. Outside the synthesis activity the dimers of F_1F_0 -ATP synthase are apparently taking part in the formation of the cristae of the inner membrane of a mitochondrion. Recently, the role of the enzyme is also considered in the creation of the mitochondrial permeability transition pore.