ATP8 is one of three mitochondrial genes, along with OLI1 and ATP6, that encode ATP synthase subunits. The ATP synthase complex utilizes proton motive force to generate ATP from ADP and Pi. The structure of this enzyme complex is highly conserved among diverse organisms and consists of two major components, soluble F1 and membrane-bound F0, each of which contains many subunits. Atp8pis homologous to mammalian mitochondrial subunit A6L, but has no bacterial homolog. Although the specific function of this integral membrane protein is not yet known, it is essential for ATP synthase assembly and activity. Deletion of ATP8, like deletions in many genes necessary for the function or maintenance of mitochondria, leads to a \"petite\" phenotype that is slow-growing and unable to survive on nonfermentable carbon sources. General ATP synthase structure and function are reviewed in references 5 and 7. For a review that is specific to yeast, see reference 4.