ATP4 encodes subunit b of mitochondrial ATP synthase. 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. F1 and F0 are connected, both functionally and physically, via two additional multi-subunit structures, the central stalk and the stator stalk. Subunit b is part of the stator stalk, a stationary structure necessary for the productive transmission of rotary motion from the F0 proton pump to the F1 catalytic core. Although ATP4 is essential for ATP synthase function, it is not essential for life in yeast. Deletion of ATP4, 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 6 and 7. For a review that is specific to yeast, see reference 9.