

The UbiB Family Member Cqd1 Forms a Membrane Contact Site in Mitochondria

Authors : S. Khosravi, X. Chelius, A. Unger, D. Rieger, J. Frickel, T. Sachsenheimer, C. Luechtenborg, R. Schieweck, B. Bruegger, B. Westermann, T. Klecker, W. Neupert, M. E. Harner

Abstract : The use of *Saccharomyces cerevisiae* as a model organism to study eukaryotic cell functions has been used successfully for decades. Like virtually all eukaryotic cells, they contain mitochondria as essential organelles performing various functions, including participation in lipid metabolism. They are separated from the cytosol by a double membrane system consisting of the mitochondrial inner membrane (MIM) and the mitochondrial outer membrane (MOM). This physical separation of the mitochondria requires an exchange of metabolites, proteins, and lipids. Proteinaceous contact sites are thought to be important for this communication. Recently, it was found that Cqd1, in cooperation with Cqd2, controls the distribution of Coenzyme Q within the cell. In this study, a contact site is described, formed by the MOM protein complex Por1-Om14 and the UbiB protein kinase-like MIM protein Cqd1. The present results suggest the additional involvement of Cqd1 in the homeostasis of phospholipids. Moreover, we show that overexpression of the UbiB family proteins also causes tethering of the mitochondria to the endoplasmic reticulum. Due to the conservation of the subunits of this contact site to higher eukaryotes, its identification in *S. cerevisiae* might provide promising avenues for further research in other organisms.

Keywords : contact sites, mitochondrial architecture, mitochondrial proteins, yeast mitochondria

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