

The ER chaperone calnexin controls mitochondrial positioning and respiration

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Calnexin as a metabolic nexus

Ca²⁺ flow from the ER to mitochondria promotes ATP production through oxidative phosphorylation. Gutiérrez *et al.* investigated the role of calnexin, an ER chaperone that interacts with SERCA, the ATPase that pumps Ca²⁺ into the ER, in mitochondrial bioenergetics. The authors found that calnexin maintained SERCA in a redox state that was optimal for activity. Mitochondria were closer to the ER in cells without calnexin than in cells with calnexin. This enabled calnexin knockout cells to partially rescue Ca²⁺ influx into mitochondria and to perform limited oxidative phosphorylation that was supplemented with increased glycolysis. These data suggest that calnexin positions mitochondria to regulate Ca²⁺ flow from the ER and respiration.

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