

Special Issue

Research of Mitochondrial Function, Structure, Dynamics and Intracellular Organization

Message from the Guest Editor

Mitochondria play a central role in maintaining cellular function by energy (ATP) production. They are also a source of reactive oxygen species and pro-apoptotic elements. In addition to oxidative phosphorylation (OXPHOS), mitochondria regulate a wide range of metabolic processes and cellular signaling mechanisms. The importance of mitochondria in many aspects of cell physiology, bioenergetics, normal cell function and ions control (in particular Ca^{2+}) is well known. Changes in mitochondrial function and energy transfer play crucial role in numerous diseases and in aging. Therefore, multifaceted and comprehensive analysis of mitochondria is central in the studies of energy metabolism and in pathophysiology of human diseases, including ischemia-reperfusion injury, myopathies, neurodegenerative diseases and cancer. The study of mitochondrial oxygen consumption (OXPHOS) can be performed using isolated mitochondria or in situ, in permeabilized cells or muscle fibers. Moreover, changes in the mitochondrial structure, dynamics, organization and function can be analysed by fluorescent imaging approach.

Guest Editor

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