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Mitochondrial Function and Signaling to Regulate Cellular Life

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Deadline for manuscript
submissions:

closed (31 January 2023)

Message from the Guest Editors

The primary role of mitochondria is to supply ATP to the cell; however, these organelles are also signaling hubs which receive and transmit signals to and from most cellular compartments. The importance of mitochondria in living cells is illustrated by the fact that severe mitochondrial stress can result in cellular apoptosis. Therefore, mitochondria have evolved to adapt in order to properly maintain cellular function under stressful environments. In this regard, mitochondria undergo a cell-like cycle where dysfunctional parts are separated through fission in order to be removed by the lysosome. Additionally, mitochondria are constantly synthesized (biogenesis) in a mechanism coordinated by both the nuclear and the mitochondrial genome, which are in constant crosstalk. Therefore, understanding the mitochondrial response to stress and the molecular mechanisms that enhance mitochondrial function will be of great value to prevent and reverse a variety of age-related metabolic diseases.



mdpi.com/si/76595

Special Issue



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