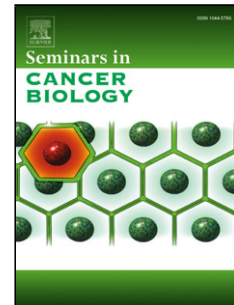


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## Current and upcoming mitochondrial targets for cancer therapy

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### Abstract

Mitochondria are essential intracellular organelles that regulate energy metabolism, cell death, and signaling pathways that are important for cell proliferation and differentiation. Therefore, mitochondria are fundamentally implicated in cancer biology, including initiation, growth, metastasis, relapse, and acquired drug resistance. Based on these implications, mitochondria have been proposed as a major therapeutic target for cancer treatment. In addition to classical view of mitochondria in cancer biology, recent studies found novel pathophysiological roles of mitochondria in cancer. In this review, we introduce recent concepts of mitochondrial roles in cancer biology including mitochondrial DNA mutation and epigenetic modulation, energy metabolism reprogramming, mitochondrial channels, involvement in metastasis and drug resistance, and cancer stem cells. We also discuss the role of mitochondria in emerging cancer therapeutic strategies, especially cancer immunotherapy and CRISPR-Cas9 system gene therapy.

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