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The Mitochondrial dynamics in cancer and immune-surveillance

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Abstract

Mitochondria-shaping proteins control the dynamic equilibrium between fusion and fission of the mitochondrial network. Their balance is strictly required to regulate various processes, including the quality of mitochondria, cell metabolism, cell death, proliferation and cell migration. Alterations in these processes are frequently encountered in cancer, during both its onset and later progression, as evidence emerge connecting alterations in mitochondrial dynamics with cancer development. In recent years, novel therapeutic approaches to fight against different human tumors aim at exploiting the immune system's ability to specifically recognize tumor antigens, thus killing malignant cells in a process named immune-surveillance. Interestingly, data are accumulating on the role that mitochondrial dynamics play also for the correct function of both the innate and the adaptive immune system. By this review, we overview how mitochondrial dynamics can affect various processes during cancer development, acting directly on tumor cells or indirectly on cells responsible for tumor aggression and defence.

Keywords: mitochondrial dynamics, cancer, immune-surveillance, apoptosis, cell migration

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