

综述

## 氧化应激致PC12细胞凋亡的信号传导途径的研究进展

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**摘要** PC12细胞被广泛用于神经细胞功能、分化、凋亡和神经递质分泌, 以及潜在的分子机制的研究。氧化应激可导致PC12细胞凋亡, 其作用方式为激活对氧化还原反应敏感的细胞信号传导, 主要与丝裂原活化蛋白激酶、线粒体凋亡及NF- $\kappa$ B信号传导途径有关。本文综述了氧化应激致PC12细胞凋亡的信号传导途径, 旨在为神经系统氧化应激相关疾病的抗氧化剂药物治疗和凋亡信号途径药物干预治疗提供理论依据。

**关键词** [氧化应激](#) [PC12细胞](#) [细胞凋亡](#)

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## Progress in signal pathways of apoptosis in PC12 cells induced by oxidative stress

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### Abstract

PC12 cells are widely used in studying the function, differentiation and apoptosis of neurons and neurosecretory cells, as well as the secretion of neurotransmitters and the underlying molecular mechanisms. It is well known that oxidative stress can induce apoptosis of PC12 cells through activating multiple intracellular signal transduction pathways including mitogen activated protein kinases, mitochondrial apoptosis and NF- $\kappa$ B pathways. This paper reviewed signal pathways of apoptosis in PC12 cells induced by oxidative stress, and provided the theoretical basement for the treatment of antioxidants and interventional medicine of signal pathway of apoptosis against various nervous system diseases resulting from oxidative stress.

**Key words** [oxidative stress](#) [PC12 cell](#) [apoptosis](#)

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