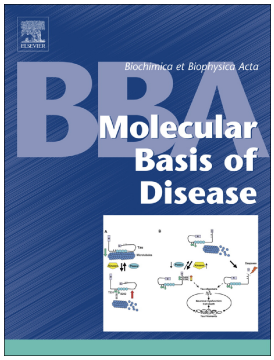
PAKs in the brain: Function and dysfunction



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PAKs in the brain: function and dysfunction

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Abstract

p21-activated kinases (PAKs) comprise a family of proteins covering a central role in signal transduction. They are downstream effectors of Rho GTPases and can affect a variety of processes in different cell types and tissues by remodeling the cytoskeleton and by promoting gene transcription and cell survival. Given the relevance of cytoskeletal organization in neuronal development as well as synaptic function and the importance of pro-survival signals in controlling neuronal cell fate, accumulating studies investigated the role of PAKs in the nervous system. In this review, we provide a critical overview of the role of PAKs in the nervous system, both in neuronal and non-neuronal cells, and discuss their potential link with neurodegenerative diseases.

Keywords

p21-activated kinases; actin cytoskeleton; CNS; signal transduction; neurodegeneration