

Growth factors and astrocytes metabolism: Possible roles for platelet derived growth factor

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Astrocytes exert multiple functions in the brain such as the development of blood-brain barrier characteristics, the promotion of neurovascular coupling, attraction of cells through the release of chemokines, clearance of toxic substances and generation of antioxidant molecules and growth factors. In this aspect, astrocytes secrete several growth factors (BDNF, GDNF, NGF, and others) that are fundamental for cell viability, oxidant protection, genetic expression and modulation of metabolic functions. The platelet derived growth factor (PDGF), which is expressed by many SNC cells, including astrocytes, is an important molecule that has shown neuroprotective potential, improvement of wound healing, regulation of calcium metabolism and mitochondrial function. Here we explore some of these astrocyte-driven functions of growth factors and their possible therapeutic uses in the context of neurodegeneration. © 2016 Bentham Science Publishers.

Astrocyte

Growth factors

Metabolism

Mitochondria

Neuroprotection

Platelet derived growth factor

adenosine triphosphatase (potassium sodium)

brain derived neurotrophic factor

glial cell line derived neurotrophic factor

growth factor

nerve growth factor

neuroprotective agent

neurotrophic factor

peroxisome proliferator activated receptor gamma

platelet derived growth factor

platelet derived growth factor BB

scatter factor

somatomedin

vasculotropin

vasculotropin B

wound healing promoting agent

platelet derived growth factor

Article

astrocyte

blood brain barrier

calcium metabolism

cell metabolism

cell protection

cell viability

dopaminergic nerve cell

drug activity

drug delivery system

gene expression

glial precursor cell

human

mitochondrion

nerve degeneration

neuroprotection

oxidation

priority journal

protein expression

protein function

wound healing

animal

astrocyte

metabolism

Animals

Astrocytes

Humans

Platelet-Derived Growth Factor