

Neuroprotective effects of curcumin through autophagy modulation

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Autophagy is a highly conserved cellular degradation process involving lysosomal degradation for the turnover of proteins, protein complexes, and organelles. Defects in autophagy produces impaired intercellular communication and have subsequently been shown to be associated with pathological conditions, including neurodegenerative diseases. Curcumin is a polyphenol found in the rhizome of *Curcuma longa*, which has been shown to exert health benefits, such as antimicrobial, antioxidant, anti-inflammatory, and anticancer effects. There is increasing evidence in the literature revealing that autophagy modulation may provide neuroprotective effects. In light of this, our current review aims to address recent advances in the neuroprotective role of curcumin-induced autophagy modulation, specifically with a particular focus on its effects in Alexander disease, Alzheimer's disease, ischemia stroke, traumatic brain injury, and Parkinson's disease. © 2019 International Union of Biochemistry and Molecular Biology

antioxidant

autophagy

curcumin

molecular mechanisms

biological marker

curcumin

Alexander disease

Alzheimer disease

autophagy (cellular)

brain cancer

brain ischemia

cerebral ischemia reperfusion injury

diabetes mellitus

drug bioavailability

drug mechanism

human

neuroprotection

nonhuman

Parkinson disease

peripheral nerve injury

Review

spinal cord injury

traumatic brain injury