Berberine alters the processing of Alzheimer's amyloid precursor protein to decrease Abeta secretion.


Source

Department of Pharmacology, Faculty of Medicine, Saitama Medical University, 38 Moro-hongo, Irumagun, Saitama 350-0495, Japan. asai@saitama-med.ac.jp

Abstract

Berberine is an isoquinoline alkaloid isolated from Coptidis rhizoma, a major herb widely used in Chinese herbal medicine. Berberine's biological activity includes antidiarrheal, antimicrobial, and anti-inflammatory effects. Recent findings show that berberine prevents neuronal damage due to ischemia or oxidative stress and that it might act as a novel cholesterol-lowering compound. The accumulation of amyloid-beta peptide (Abeta) derived from amyloid precursor protein (APP) is a triggering event leading to the pathological cascade of Alzheimer's disease (AD); therefore the inhibition of Abeta production should be a rational therapeutic strategy in the prevention and treatment of AD. Here, we report that berberine reduces Abeta levels by modulating APP processing in human neuroglioma H4 cells stably expressing Swedish-type of APP at the range of berberine concentration without cellular toxicity. Our results indicate that berberine would be a promising candidate for the treatment of AD.

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