The natural product berberine is a human prolyl oligopeptidase inhibitor.


Source

Institut de Recerca Biomèdica de Barcelona, Parc Científic de Barcelona, Josep Samitier, 1-5, 08028 Barcelona, Spain.

Abstract

Prolyl oligopeptidase is a cytosolic serine peptidase that hydrolyzes proline-containing peptides at the carboxy terminus. This peptidase has been associated with schizophrenia, bipolar affective disorder, and related neuropsychiatric disorders, and therefore may have important clinical implications. Among the strategies used to find novel prolyl oligopeptidase inhibitors, traditional Chinese medicinal plants provide a rich source of unexplored compounds. We used (19)F NMR spectroscopy to search for new prolyl oligopeptidase inhibitors in a library of traditional Chinese medicine plant extracts. Several extracts were identified as powerful inhibitors of this peptidase. The alkaloid berberine was the prolyl oligopeptidase inhibitory molecule isolated from Rhizoma coptidis extract. Berberine inhibited prolyl oligopeptidase in a dose-dependent manner. As berberine is a natural compound that has been safely administered to humans, it opens up new perspectives for the treatment of neuropsychiatric diseases. The results described herein suggest that the initiation of clinical trials in patients with schizophrenia, bipolar affective disorder, or related diseases in which cognitive capabilities are affected should be undertaken with either the extract or pure BBR.

PMID:17295371