

Accepted Manuscript

Title: The inhibitory effect of chitosan oligosaccharides on β -site amyloid precursor protein cleaving enzyme 1 (BACE1) in HEK293 APPswe cells

Authors: Xueling Dai, Ping Chang, Xiaoxiao Li, Zhaolan Gao, Yaxuan Sun



PII: S0304-3940(17)30961-8
DOI: <https://doi.org/10.1016/j.neulet.2017.11.052>
Reference: NSL 33260

To appear in: *Neuroscience Letters*

Received date: 24-7-2017
Revised date: 6-11-2017
Accepted date: 22-11-2017

Please cite this article as: Xueling Dai, Ping Chang, Xiaoxiao Li, Zhaolan Gao, Yaxuan Sun, The inhibitory effect of chitosan oligosaccharides on β -site amyloid precursor protein cleaving enzyme 1 (BACE1) in HEK293 APPswe cells, *Neuroscience Letters* <https://doi.org/10.1016/j.neulet.2017.11.052>

This is a PDF file of an unedited manuscript that has been accepted for publication. As a service to our customers we are providing this early version of the manuscript. The manuscript will undergo copyediting, typesetting, and review of the resulting proof before it is published in its final form. Please note that during the production process errors may be discovered which could affect the content, and all legal disclaimers that apply to the journal pertain.

The inhibitory effect of chitosan oligosaccharides on β -site amyloid precursor protein cleaving enzyme 1 (BACE1) in HEK293 APPswe cells

Xueling Dai ^{a,*}, Ping Chang ^a, Xiaoxiao Li ^a, Zhaolan Gao ^b, Yaxuan Sun ^{b,*}

^a Beijing Key Laboratory of Bioactive Substances and Functional Foods, Beijing Union University, Beijing 100191, China;

^b Department of Food Science, College of Biochemical Engineering, Beijing Union University, Beijing 100023, China

* To whom correspondence should be addressed:

E-Mail: xueling@buu.edu.cn (X.D.); Tel.: +86-10-62004534; Fax: +86-10-62388926;

E-Mail: sunxx@buu.edu.cn (Y.S.); Tel.: +86-10-62004536; Fax: +86-10-62004536.

Highlights

- COS dose-dependently decreased the cell apoptosis mediated by APPswe overexpression.
- COS repressed the secretion of both A β 40 and A β 42 in HEK293 APPswe cells.
- COS significantly reduced both BACE1 expression and enzymatic activity.
- eIF2 α phosphorylation was involved in COS-mediated BACE1 reduction.

Abstract: Amyloid precursor protein (APP) proteolysis is essential for the production of β -amyloid peptides (A β) that form senile plaques in Alzheimer's disease (AD) brains. The β -site amyloid protein precursor cleaving enzyme 1 (BACE1) is the rate limiting enzyme in the generation of A β from APP, inhibition of BACE1 is thereby considered as an attractive strategy for anti-AD drug discovery. Chitosan oligosaccharides (COS) has been shown to possess various biological activities. Here we investigated the potential inhibitory effect of COS on both BACE1 expression in HEK293 APPswe

Download English Version:

<https://daneshyari.com/en/article/8841857>

Download Persian Version:

<https://daneshyari.com/article/8841857>

[Daneshyari.com](https://daneshyari.com)