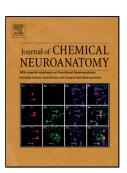
### Accepted Manuscript

Title: Berberine confers neuroprotection in coping with focal cerebral ischemia by targeting inflammatory cytokines

Author: Solmaz Nasseri maleki Nahid Aboutaleb Faramarz Souri



 PII:
 S0891-0618(17)30033-9

 DOI:
 http://dx.doi.org/doi:10.1016/j.jchemneu.2017.04.008

 Reference:
 CHENEU 1488

To appear in:

Received date:	22-2-2017
Revised date:	24-3-2017
Accepted date:	24-4-2017

Please cite this article as: maleki, S.N., Aboutaleb, N., Souri, F.,Berberine confers neuroprotection in coping with focal cerebral ischemia by targeting inflammatory cytokines, *Journal of Chemical Neuroanatomy* (2017), http://dx.doi.org/10.1016/j.jchemneu.2017.04.008

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.

## ACCEPTED MANUSCRIPT

Berberine confers neuroprotection in coping with focal cerebral ischemia by targeting inflammatory cytokines

Solmaz Nasseri maleki<sup>a</sup>, Nahid Aboutaleb<sup>a\*</sup>, Faramarz Souri<sup>a</sup>

<sup>a</sup> Physiology Research Center and Department of Physiology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran

\*Corresponding Author: Nahid Aboutaleb

Physiology Research Center and Department of Physiology, Faculty of Medicine, Iran University of Medical Sciences, Tehran, Iran.

Tel: +989123856305

Email: dr\_nabo40@yahoo.com

#### Highlights

Berberine reduces brain edema and infarct volume through regulation of inflammatory responses in focal cerebral ischemia.

Berberine increases the expression of anti- inflammatory cytokines after ischemic stroke.

Berberine contributes to recovery of motor function after focal cerebral ischemia.

#### Abstract

**Scope:** Existing research indicates that anti-inflammatory and antioxidant properties of berberine play major roles in coping with oxidative stress in neurodegenerative diseases, but it is not known if this isoquinoline alkaloid affects inflammatory cytokines such as interleukin 10 in focal cerebral ischemia.

**Methods and results:** Male Wistar rats (10 weeks old) were treated with 40mg/kg concentration of berberine 1h after focal cerebral ischemia and the anti-inflammatory properties of berberine were evaluated by immunohistochemical analysis, water content measure and behavioral tests. Evaluation of infarct volume was performed by TTC staining. Immunohistochemistry and behavioral assessment indicated recovery in treatment group compared to only ischemia group. The infarct volume decreased in treatment group compared to ischemia group. Berberine administration significantly decreased brain edema and contributed to the restoration of motor function. Moreover, berberine potently contributed to neuroprotection in motor area through downregulation of pro-inflammatory cytokines and upregulation of anti-inflammatory cytokines.

**Conclusions**: These findings confirm the validity of berberine as a potent anti-inflammatory agent in treatment of ischemic stroke.

Keywords: Berberine, inflammatory cytokines, MCAO model, neuroprotection

Download English Version:

# https://daneshyari.com/en/article/8336188

Download Persian Version:

https://daneshyari.com/article/8336188

Daneshyari.com