Supporting Information to:

A Study of the Neuroprotective Effect of the Phenolic Glucoside Gastrodin during Cerebral Ischemia in vivo and in vitro

Xianghui Zeng
Shaomin Zhang
Le Zhang
Keping Zhang
Xiaoxiang Zheng

Affiliation

Department of Biomedical Engineering, Key Laboratory for Biomedical Engineering of Ministry of Education of China, Zhejiang University, Hangzhou, P. R. China

Correspondence

Prof. Xiaoxiang Zheng
Department of Biomedical Engineering
Key Laboratory for Biomedical Engineering of Ministry of Education of China
Zhejiang University
Yuquan Campus
Hangzhou 310027
People’s Republic of China
Phone: +86-571-8795-1091
Fax: +86-571-8795-1676
E-mail: zxx@mail.hz.zj.cn
Effect of Phenolic Glucoside Gastrodin (Gas) on MCAO-Induced Focal Cerebral Ischemia in Rats

Focal cerebral ischemia was induced with the intraluminal filament method as described by Zea-Longa et al. [1]. In this study, ischemia was induced by occlusion of the MCA for 50 min followed by reperfusion for 24 h. This duration of ischemia produces a considerable infarct in the ipsilateral hemisphere. For infarct volume measurement, brains were isolated 24 h after MCAO and sectioned into six coronal sections of 2-mm thickness from the frontal tip. They were stained with 2% 2,3,5-triphenyltetrazolium chloride (TTC), then fixed with 10% phosphate-buffered formalin. Infarct areas of all the sections were calculated using image analysis software (provided by the Dept. of Biomedical Engineering, Zhejiang University, China).

The total infarct area was multiplied by the thickness of the brain sections to get the infarct volume. Volumes of ipsilateral and contralateral hemispheres were calculated. To compensate for brain swelling in the ischemic hemisphere, infarct volume was corrected by using the formula:

corrected infarct volume = (infarct volume × contralateral hemisphere volume)/ipsilateral hemisphere volume.

The percentage of corrected infarct was calculated by dividing the corrected infarct volume by the total volume of the bilateral hemisphere [2].

50-min of MCAO and 24-h of reperfusion resulted in a significant infarct (29.4%) as shown in TTC-stained coronal brain sections of vehicle-treated rats (Fig. S2A). Gas treatment at 100 mg/kg significantly decreased total infarct volume by 16.3% ($P < 0.05$) as compared to vehicle-treated MCAO rats. The low dose of Gas (50 mg/kg) treatment mildly reduced infarct size, but there was no statistically significant difference from vehicle-treated group. MK801 significantly decreased infarct by 27.9% ($P<0.01$) as compared to vehicle-treated MCAO rats.
Fig. **S2A** Effect of gastrodin on infarct volume after focal cerebral ischemia in rats. Representative TTC-stained sections after MCAO show smaller infarcts (lighter areas on right hemisphere) in Gas-treated rats versus vehicle-treated rats.

**References**