F-P-14

허혈-재관류 유도 SH-SY5Y 모델에서 베타아밀로이드 생성에 미치는 석창포 추출물에 대한 뇌 신경보호 효과

신수영, 정진우, 김철환, 안은정, 이승영, 이창민, 최경민*
국립낙동강생물자원관, 연구원

Neuroprotective Effects of *Acorus gramineus* Soland. on Oxygen-Glucose Deprivation/Reoxygenation-Induced β-amyloid Production in SH-SY5Y Neuroblastoma Cells

Su Young Shin, Jin-Woo Jeong, Chul Hwan Kim, Eun Jung Ahn, Seung Young Lee, Chang-Min Lee and Kyung-Min Choi*
Researcher, Nakdonggang National Institute of Biological Resources, Korea

Although hypoxic/ischemic injury is thought to contribute to the incidence of Alzheimer disease (AD), the molecular mechanism that determines the relationship between hypoxia-induced β-amyloid (Aβ) generation and development of AD is not yet known. In this study, we investigated the protective effects of *Acorus gramineus* Soland. (AGS) on oxygen-glucose deprivation/reoxygenation (OGD/R)-induced A β production in SH-SY5Y human neuroblastoma cells. Pretreatment of these cells with AGS significantly attenuated OGD/R-induced production of reactive oxygen species (ROS) and elevation of levels of malondialdehyde, nitrite (NO), prostaglandin E2 (PGE2), cytokines (TNF-α, IL-1β and IL-6) and glutathione, as well as superoxide dismutase activity. AGS also reduced OGD/R-induced expression of the apoptotic protein caspase-3, the apoptosis regulator Bcl-2, and the autophagy protein becn-1. Finally, AGS reduced OGD/R-induced Aβ production and cleavage of amyloid precursor protein, by inhibiting secretase activity and suppressing the autophagic pathway. Although supporting data from *in vivo* studies are required, our results indicate that AGS may prevent neuronal cell damage from OGD/R-induced toxicity.

Key words: *Acorus gramineus* Soland., Oxygen-glucose deprivation/reoxygenation, reactive oxygen species, β-amyloid, SH-SY5Y cells

[본 논문은 환경부의 재원으로 국립낙동강생물자원관(NNIBR2021021010)의 지원을 받아 수행된 연구이며, 이에 감사드립니다.]

*(Corresponding author) kyungmc69@nnibr.re.kr, Tel: +82-54-530-0805