Antioxidant Effects of *Scutellaria baicalensis* Georgi Against Hydrogen Peroxide-induced DNA Damage and Apoptosis in HaCaT Human Skin Keratinocytes

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In this study, we investigated whether *S. baicalensis* rhizome ethanol extract (SBRE) has antioxidant capacities against oxidative stress induced cellular damage in the HaCaT keratinocytes. Our results revealed that treatment with SBRE prior to hydrogen peroxide (H\textsubscript{2}O\textsubscript{2}) exposure significantly increased the HaCaT cell viability. SBRE also effectively attenuated H\textsubscript{2}O\textsubscript{2} induced comet tail formation, and inhibited the H\textsubscript{2}O\textsubscript{2} induced phosphorylation levels of the histone γH2AX, as well as the number of apoptotic bodies and Annexin V positive cells. In addition, SBRE exhibited scavenging activity against intracellular ROS generation and restored the mitochondria membrane potential loss induced by H\textsubscript{2}O\textsubscript{2}. Moreover, H\textsubscript{2}O\textsubscript{2} enhanced the cleavage of caspase-3 and degradation of poly (ADP-ribose)-polymerase as well as DNA fragmentation; however, these events were almost totally reversed by pretreatment with SBRE. Furthermore, SBRE increased the levels of HO-1 associated with the induction of Nrf2. Therefore, we believed that SBRE may potentially serve as an agent for the treatment and prevention of neurodegenerative diseases caused by oxidative stress.

**Key words:** *Scutellaria baicalensis* Georgi, Antioxidant, ROS, DNA damage, Apoptosis, Nrf2/HO-1

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