

P77. Carnosic acid induces the expression of glutathione *S*-transferase P via CREB activation to protect SH-SY5Y neuronal cells from 6-hydroxydopamine-induced apoptosis

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Carnosic acid (CA), a rosemary phenolic diterpene, has neuroprotective property. Studies have indicated that glutathione *S*-transferase P (GSTP) expression negatively regulates JNK-induced apoptosis. cAMP response element binding protein (CREB) binds to cAMP response element (CRE) and up-regulates GSTP expression. Here, we investigated whether the neuroprotective role of CA on preventing 6-hydroxydopamine (6-OHDA)-induced apoptosis in SH-SY5Y cells is related to GSTP expression. CA treatment significantly increased the phosphorylation of nuclear CREB. Pretreatment of H89 (PKA inhibitor) attenuated CA-increased phosphorylation of nuclear CREB, protein expression of GSTP, and CRE binding to DNA activity. CA inhibited 6-OHDA-induced the activation of JNK and caspase 3 was reversed by H89 or GSTP siRNA. Moreover, immunoprecipitation assay revealed that the protein interaction of JNK and GSTP was increased by 6-OHDA in the presence of CA. Taken together, CA provided neuroprotection by raising the GSTP expression through the activation of CREB and modulation protein interaction of JNK and GSTP.