Sodium hydrosulfide

Recently, sodium hydrosulfide (NaHS) has been found to have neuroprotective properties. A study addressed whether NaHS could rescue DA-challenged inflammation and apoptosis in neurons to ameliorate memory impairment in MHE rats and in the neuron and astrocyte coculture system. We found that NaHS suppressed DA-induced p65 acetylation, resulting in reduced TNF-α production in astrocytes both in vitro and in vivo. Furthermore, decreased apoptosis was observed in neurons exposed to conditioned medium from DA + NaHS-challenged astrocytes, which was similar to the results obtained in the neurons exposed to TNF-α + NaHS, suggesting a therapeutic effect of NaHS on the suppression of neuronal apoptosis via the reduction of TNF-α level. DA triggered the inactivation of p70 S6 ribosomal kinase (S6K1) and dephosphorylation of Bad, resulting in the disaggregation of Bclxl and Bak and the release of cytochrome c (Cyt. c), and this process could be reversed by NaHS administration. Our work demonstrated that NaHS attenuated DA-induced astrocytic TNF-α release and ameliorated inflammation-induced neuronal apoptosis in MHE. Further research into this approach may uncover future potential therapeutic strategies for MHE [1].

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Zhuge W, Zhuge Q, Wang W, Lu X, You R, Liu L, Yu H, Wang J, Wang X, Ye Y, Ding S. Hydrogen sulphide ameliorates dopamine-induced astrocytic inflammation and neurodegeneration in minimal hepatic encephalopathy. J Cell Mol Med. 2020 Oct 28. doi: 10.1111/jcmm.15728. Epub ahead of print. PMID: 33118312.