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Inhibitory effect of panaxytriol on the lipopolysaccharide-induced microglial activation

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【Introduction】 In neurodegenerative diseases, activated microglia induce brain inflammation, and produce proinflammatory mediator and injury surrounding neurons. Thus, inhibiting microglial activation may be an effective therapeutic target in neurodegenerative diseases. Panaxytriol, which is one of phytochemicals contained in Panax ginseng C. A. Meyer, significantly protected PC12 cells from 6-hydroxydopamine-induced cytotoxicity through Nrf2-ARE pathway. However, it is not revealed the effect on activated microglia by panaxytriol.

【Methods】 BV-2 cells, a mouse-derived microglial cell line, were treated with LPS for 24 h, as an activated microglia model. Brain inflammation was induced by intracerebroventricular injection of LPS in C57BL/6Ncr mice.

【Results】 In vitro, panaxytriol significantly inhibited increased proinflammatory cytokine production induced by LPS. Panaxytriol attenuated the nuclear translocation of NF- κ B induced by LPS. In vivo, panaxytriol did not improved LPS-induced a decrease of spontaneous behavior. However, panaxytriol significantly reduced the activation of microglia and suppressed morphological changes of microglia induced by LPS in hippocampus.

【Conclusion】 These results suggest that panaxytriol may possess inhibitory effect on brain inflammation and may be an effective therapeutic agent for neurodegenerative diseases.