

Neuro2a 細胞における神経突起伸長および過酸化水素誘発細胞毒性に対するカルバゾール誘導体の影響

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Effects of Carbazole Derivatives on Neurite Outgrowth and Hydrogen Peroxide-Induced Cytotoxicity in Neuro2a Cells

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ABSTRACT: Many studies have demonstrated that oxidative stress plays an important role in several ailments including neurodegenerative diseases and cerebral ischemic injury. Previously we synthesized some carbazole compounds that have anti-oxidant ability in vitro. In this present study, we found that one of these 22 carbazole compounds, compound **13** (3-ethoxy-1-hydroxy-8-methoxy-2-methylcarbazole-5-carbaldehyde), had the ability to protect neuro2a cells from hydrogen peroxide-induced cell death. It is well known that neurite loss is one of the cardinal features of neuronal injury. Our present study revealed that compound **13** had the ability to induce neurite outgrowth through the PI3K/Akt signaling pathway in neuro2a cells. These findings suggest that compound **13** might exert a neurotrophic effect and thus be a useful therapy for the treatment of brain injury

抄録 抗酸化作用をもつカルバゾール誘導体の1つである化合物**13** (3-ethoxy-1-hydroxy-8-methoxy-2-methylcarbazole-5-carbaldehyde) が、neuro2a 細胞を過酸化水素から保護する能力をもっていることを発見し、neuro2a 細胞の PI3K/Akt シグナル伝達経路を介して神経突起伸長を誘導する能力を持っていることも明らかにしている。これらのことより、化合物**13** が神経栄養効果を発揮し、脳損傷の治療のための有用な治療法になる可能性があることを示唆している内容である。

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