

腦神經滋養因子調控軟骨肉瘤細胞的 VEGF 產生和血管新生

BDNF regulates VEGF production and angiogenesis in human chondrosarcoma cells

林智暘¹, 湯智昕^{2,1*}

Chih-Yang Lin¹, Chih-Hsin Tang^{2,1*}

¹中國醫藥大學基礎醫學研究所, ²中國醫藥大學醫學院藥理科

¹Graduate Institute of Basic Medical Science, China Medical University, Taichung, Taiwan

²Department of Pharmacology, School of Medicine, China Medical University, Taichung, Taiwan

Backgrounds:

Vascular endothelial growth factor (VEGF) is a major regulator of tumor angiogenesis, it is occurs during development and vascular remodeling as a controlled series of events leading to neovascularization. Because of angiogenesis is essential for tumor growth and metastasis, controlling tumor-associated angiogenesis is a promising targeted therapy in limiting cancer progression. Brain-derived neurotrophic factor (BDNF) is commonly up-regulated in a variety of tumor angiogenesis. However, the role of BDNF in chondrosarcoma cells has not been unknown. The aim of the present study was to examine the mechanism involved in BDNF-mediated VEGF expression and angiogenesis in human chondrosarcoma cells.

Materials and Methods:

The VEGF expression was examined using ELISA and qPCR assay. The PLC γ , PKC α , and HIF-1 α activation was examined by using Western blot method. A transient transfection protocol was used to examine HRE activity.

Results:

We found that BDNF increased VEGF production by using qPCR, western blotting, and ELISA assay. Pretreatment of cells with TrkB receptor, PLC γ , PKC α , and HIF-1 α inhibitor reduced BDNF-induced VEGF expression. In addition, transfection of cells with TrkB receptor, PLC γ , PKC α , and HIF-1 α siRNA also abolished BDNF-increased VEGF production. Incubation of cells with BDNF also enhanced HIF-1 α activation.

Conclusion:

BDNF plays a critical role in tumor angiogenesis. We investigated the potential role of BDNF in VEGF expression in human chondrosarcoma cells. We found that BDNF increased VEGF expression. In addition, TrkB receptor, PLC γ , PKC α , and HIF-1 α signaling pathways are involved.

第一作者中文姓名：林智暘

傳真：