

论著

黄荆子乙酸乙酯提取物对人绒毛膜癌JEG-3细胞增殖与凋亡的影响及其作用机制

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摘要: 目的: 观察黄荆子乙酸乙酯提取物(purified vitexin compound 2, VB2)对人类绒毛膜癌JEG-3 细胞体外增殖及凋亡活性, 及对凋亡相关基因mTOR/4E-BP1 mRNA 表达的影响。方法: 应用四甲基偶氮唑蓝(MTT)法检测不同浓度的VB2 对JEG-3 细胞的体外增殖活性; Hoechst 33258 染色观察细胞形态学变化; 流式细胞分析方法定量检测不同浓度药物作用后细胞凋亡率; RT-PCR 法检测mTOR/4E-BP1 mRNA 水平表达的变化。结果: 1) 2.5, 5.0, 10.0, 20.0, 40.0, 80.0, 160.0 $\mu\text{mol/L}$ 的VB2 分别作用JEG-3 细胞(24, 48, 72 h)后, 其生长抑制率由(6.34 \pm 0.41)% 增加至(85.89 \pm 0.81)%, 且与剂量及作用时间呈明显正相关($P<0.05$)。2) 0, 5.0, 10.0, 20.0 $\mu\text{mol/L}$ 的VB2 处理JEG-3 细胞48 h 后, 加药组细胞有明显的凋亡形态特征; 其凋亡率由(9.26 \pm 1.02)% 增至(35.55 \pm 1.24)%, 并呈明显剂量依赖性($P<0.05$); mTOR 及4EBP1 mRNA 表达水平随着VB2 作用浓度增高逐渐降低, 二者呈负相关($P<0.05$)。结论: VB2 能抑制人绒毛膜癌JEG-3 细胞增殖, 诱导其凋亡, 此作用可能与VB2 抑制JEG-3 细胞mTOR 和4E-BP1 mRNA 的表达有关。

关键词: 绒毛膜癌 JEG-3 黄荆子乙酸乙酯提取物 mTOR 4E-BP1

Proliferation and apoptosis of choriocarcinoma cell JEG-3 induced by VB2 and its in vitro mechanism

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Abstract: Objective: To investigate the effect of purified vitexin compound 2 (VB2), a noval lignanoid from the acetoacetate extract of Vitex negundo seed on the proliferation and apoptosis as well as the expression of mTOR and 4E-BP1 mRNA signal pathway in human choriocarcinoma JEG-3 cell lines in vitro.

Methods: The inhibitory effect of different concentrations of VB2 on JEG-3 cells was examined by methyl thiazolyl tetrazolium (MTT) assay. Flow cytometry was used to analyze the apoptosis after using different concentrations of VB2, and the expression of mTOR and 4E-BP1 mRNA was determined by RT-PCR.

Results: The inhibitory rate of JEG-3 cell growth which was cultured with different concentrations of VB2 (2.5, 5.0, 10.0, 20.0, 40.0, 80.0, and 160.0 $\mu\text{mol/L}$) for 24, 48, or 72 hours increased from (6.34 \pm 0.41)% to (85.89 \pm 0.81)%, and it was positively correlated with the dose and time of culture ($P<0.05$). VB2 at 5.0, 10.0, or 20.0 $\mu\text{mol/L}$ increased the rate of JEG-3 cell apoptosis in vitro from (9.26 \pm 1.02)% to (35.55 \pm 1.24)% after 48 hour culture, which was in a dose dependent manner ($P<0.05$), while 5.0, 10.0, or 20.0 $\mu\text{mol/L}$ of VB2 down-regulated the mRNA levels of mTOR and 4E-BP1 after 48 hour culture, which presented a significant negative correlation between VB2 and the mRNA levels of mTOR and 4E-BP1 ($P<0.05$).

Conclusion: VB2 can restrain the proliferation of choriocarcinoma cell JEG-3 and induce its apoptosis. This effect may be related to the inhibition of VB2 on the mRNA expression of JEG-3 cell mTOR and 4E-BP1.

Keywords: choriocarcinoma JEG-3 extract from Semen Viticis negundo mTOR 4E-BP1

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