

论文

羟基喜树碱对KB细胞克隆形成的抑制及对DNA的损伤

王心伟;沈祖铭;杨金龙;胥彬

中国科学院上海药物研究所,*本所81级研究生

摘要:

羟基喜树碱(简称羟基)是从喜树中分离到的具有抗肿瘤活性的生物碱。它能明显抑制体外培养KB细胞克隆形成,其作用1 h的ED₅₀为0.2μg/ml。它的细胞毒作用与直接影响DNA结构有关。它能引起细胞染色单体断裂,增加SCE的频率,其SCE频率的出现与克隆形成能力的抑制呈平行相关。用碱性洗脱技术研究KB细胞DNA洗脱动力学资料表明,该药能产生与蛋白质相关的DNA单链断裂。

关键词: 羟基喜树碱 KB细胞 克隆形成 DNA损伤染色单体断裂 碱性洗脱 蛋白质相关的DNA单链断裂

INHIBITORY EFFECT OF HYDROXYCAMPTOTHECIN ON COLONY FORMATION OF KB CELLS AND DNA DAMAGE

WANG Xin-Wei; SHEN Zu-Ming; YANG Jin-Long and XU Bin

Abstract:

Hydroxycamptothecin (HCPT) is an antitumor alkaloid isolated from *Camptotheca acuminata* Decaisne, a tree native to China. The present investigation showed that HCPT possesses strong cytotoxicity on KB cells using colony formation method. The ED₅₀ was found to be 0.2 μg/ml after 1 h exposure to the drug. HCPT exhibited a significant damaging effect on DNA of KB cells. Its cytotoxicity was shown to be associated with its direct action on DNA strand. It could induce formation of cellular chromatid breaks and increase the frequency of SCE. The effect of HCPT on SCE was found to parallel to the inhibition of colony formation. It was demonstrated that HCPT could induce protein-associated DNA single-strand breaks by means of alkaline elution method. The Km values of DNA elution kinetics of KB cells were found to be 0.04, 0.10, 0.12 and 0.14 h⁻¹ in the control group and in the treated group with HCPT 10, 50 and 100μg/ml respectively.

Keywords: KB cell Colony formation DNA damage Chromatid breaks Alkaline elution Protein-associated DNA single-strand breaks Hydroxycamptothecin

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