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基础研究

# Bcl-2参与SCID小鼠体内齐墩果酸诱导HL-60细胞凋亡的调控作用

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**摘要：**

目的：观察齐墩果酸（OA）对白细胞移植模型小鼠脾脏浸润白血病细胞凋亡数量和Bcl-2蛋白表达的影响，探讨OA对白血病模型鼠的治疗作用机制。方法：取浓度为$2\times10^7$ mL-1体外培养的人早幼粒系白血病HL-60细胞0.5 mL，腹腔注射重症联合免疫缺陷(SCID)小鼠，构建SCID小鼠的HL-60细胞移植瘤模型；模型成功后小鼠分为用药组、白血病模型对照组，并设正常对照组。用药组以200 $mg.kg^{-1}$OA皮下注射，用药2周后观察各组小鼠的一般状态、外周血象及骨髓象白细胞分类情况，病理学检查脾白血病细胞浸润程度，TUNEL方法测定脾浸润白血病细胞凋亡率，免疫组织化学检测HL-60细胞凋亡相关基因Bcl-2蛋白表达率。结果：成功建立SCID小鼠的HL-60细胞移植瘤模型；用药组小鼠体质量［(15.0±0.8) g］明显高于模型组小鼠［（13.9±0.9） g］(P<0.01)，小鼠生存期［（50.3±5.5） d］明显高于模型组小鼠［（37.1±4.4） d］(P<0.01)；与模型组比较，用药组外周血白血病细胞有向正常白细胞分化趋势，可见分叶的白血病细胞，骨髓象中幼稚细胞减少，脾浸润情况改善；用药组小鼠脾浸润白血病细胞凋亡率高于模型组（P<0.01），Bcl-2蛋白表达阳性细胞百分率低于模型组(P<0.01)。结论:成功建立白血病移植瘤鼠模型；OA可改变白血病移植瘤模型鼠的一般状态，延长生存期；OA通过降低Bcl-2表达可诱导白血病细胞凋亡。

**关键词：** 墩果酸；重症联合免疫缺陷；白血病 早幼粒细胞 急性； Bcl-2；细胞凋亡

# Bcl-2 participates regulation of |apoptosis induced by deanolic acid |in HL-60 cells of SCID mice

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Abstract:

Abstract:Objective To observe the effects of oleanolic acid (OA) on apoptosis and the expression of Bcl-2 protein in HL-60 cells of the human leukemia implant model mice and investigate the therapeutic effect mechanism of OA on the human leukemia implant model mice. Methods 16 SCID mice were injected with 0.5 mL HL-60 cells($2\times10^7$ mL-1,cultivated in vitro),then the human promyelocytic leukemia implant models of mice were estabished.The model mice were divided into model group and treatment group(the mice were treated by subcutaneous injection with 200 $mg.kg^{-1}$ OA;at the same time,8 normal SCID mice were used as control group.2 weeks after treatment,the general condition and WBC classification in peripheral blood and bone marrow were observed.The invasive depth of HL-60 cells in spleen was tested by histopathologic examination;the apoptotic rate of HL-60 cells in spleen invasive leukemic was measured by TUNEL;the expression of apoptosis related gene Bcl-2 was also detected by immunohistochemistry. Results The HL-60 cell implant models of SCID mice were established successfully;the bodyweight of the mice in treatment group(15.0 g±0.8 g) was obviously higher than that in control group(13.9 g±0.9 g) (P<0.01).The survival time of the mice in treatment group(50.3 d±5.5 d) was much longer than that in control group(37.1 d±4.4 d)(P<0.01).Compared with model group,the HL-60 cells in peripheral blood in treatment group trended to differentiate into normal WBC (P<0.05),the number of erythroid cells was reduced in bone marrow(P<0.05),the invasion of HL-60 cells in spleen was notably reduced(P<0.05),the apoptotic rate of HL-60 cells was increased(P<0.01) and the expression of Bcl-2 was decreased(P<0.01). Conclusion The HL-60 cell implant models of SCID mice are established successfully;OA could improve the general condition and increase the survival time of the leukemia implant model mice.OA could induce the apoptosis of HL-60 cells through down-regulation of Bcl-2 expression.

Keywords:

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