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人IL-12对结肠癌干细胞生物学特性的影响及到:

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Title: Effect and mechanism of human interleukin-12 on biological property of colon cancer stem cells

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关键词: [IL-12](#); [过表达](#); [肿瘤干细胞](#); [生物学特性](#)

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摘要: 目的 研究人IL-12对结肠癌干细胞(cancer stem cells, CSCs)生物学特性的影响及其机制。 方法 IL-12/慢病毒重组质粒转染结肠CSCs构建IL-12过表达细胞模型,将IL-12过表达CSCs接种NOD/SCID小鼠,观察成瘤情况,Transwell检测结肠CSCs侵袭性,流式细胞仪检测细胞凋亡,免疫组化检测CK20表达,Western blot检测STAT6、p-STAT6、survivin、IL-12和IL-4蛋白表达。 结果 体外实验证明,IL-12使CSCs侵袭性降低40%,细胞成球能力降低,凋亡增加[(45.2±5.6)% vs (4.1±1.2)%]。转染IL-12的CSCs在小鼠体内肿瘤生长能力降低,抑瘤率63.53%;慢病毒/IL-12转染CSCs形成的肿瘤体积(189±

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21) mm³, 质量 (1 958.2±41.2) mg; 而空载体转染CSCs形成的肿瘤体积 (1 785±32) mm³, 质量 (5 369.8±41.3) mg。Western blot检测表明, IL-12过表达显著降低结肠CSCs上清IL-4和p-STAT6表达。

结论 IL-12降低结肠CSCs自我更新能力及侵袭性, 促进其分化和凋亡, 可能和IL-4/STAT6通路有关。

Abstract: Objective To study the effect and mechanism of human interleukin 12 (IL-12) on biological property of colon cancer stem cells (CSCs). Methods Colon CSCs were transfected with IL-12/lentivirus recombinant plasmids to construct the cell model over-expressing IL-12. NOD/SCID mice were inoculated with the transfected colon CSCs. The growth of tumors initiated by CSCs in mice was observed, and the invasiveness of colon CSCs was detected by Transwell. Cell apoptosis was detected by flow cytometry, the expression of CK20 was detected by immunohistochemistry, and the protein expression of STAT6, p-STAT6, survivin, IL-12 and IL-4 was detected by Western blotting. Results After IL-12 transfection, the capacity of invasiveness of colon CSCs decreased by 40%, the tumorsphere formation capacity reduced, and cell apoptosis increased [(45.2±5.6)% vs. (4.1±1.2)%]. After injection into NOD/SCID mice, tumors initiated by colon CSCs transfected with lentivirus/IL-12 showed markedly reduced capacity of tumor growth, and the rate of tumor inhibition was 64.03%. The mean volume of tumor initiated by colon CSCs transfected with lentivirus/IL-12 was 189±21 mm³, and the mean weight was 1 958.2±41.2 mg. However, the mean volume of tumor initiated by colon cancer stem cells transfected with lentivirus was 1 785±32 mm³ and the mean weight was 5 369.8±41.3 mg. Western blotting revealed that over-expression of IL-12 reduced the expression of IL-4 and p-STAT6 in colon CSCs