[1]陈军,崔有宏,郝迎学,等.5-氟尿嘧啶及长春新碱对胃癌细胞SGC-7901干细胞相关特性的影响[J].第三军医大学学报,2013,35(12):1247-1251.
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5-氟尿嘧啶及长春新碱对胃癌细胞SGC-7901干细胞

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Title: Effects of 5-FU and vincristine on stem cell-associated phenotypes and properties of gastric cancer cell line SGC-7901

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关键词: 胃癌干细胞; 5-FU; 长春新碱; 上皮-间质转化

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摘要: 目的　探讨化疗药物5-FU、长春新碱对胃癌细胞SGC-7901干细胞相关表型及功能影响。　方法　5-FU、长春新碱分别作用于SGC-7901细胞后，通过流式细胞术及荧光实时定量PCR的方法观察胃癌干细胞候选标志CD44、CD133的表达，检测干性相关基因及上皮-间质转化（epithelial-to-mesenchymal transition，EMT）相关基因的表达变化，并检测药物作用对其集落形成能力、无血清培养基中成球能力及NOD/SCID小鼠体内成瘤能力的影响。　结果　不同浓度5-FU、长春新碱作用3 d后均可显著增加剩余SGC-7901细胞CD44 mRNA的总体表达水平，分别为未用药组的（2.36±0.03）、（1.74±0.05）、（6.03±0.75）、（4.06±0.77）倍，均有显著差异（P<0.05）。CD133及CD44阳性细胞比例亦明显升高，但干性基因表达、克隆形成能力、成瘤能力未见明显增加。而与5-FU不同的是，长春新碱作用后细胞发生了EMT相关基因的表达改变，在无血清培养基中形态与其他组细胞差异显著，且可形成典型的细胞球。　结论　5-FU及长春新碱作用后细胞CD44和CD133的表达增加，此外长春新碱还促进细胞EMT改变，并增加细胞在无血清培养基中的成球能力。

Abstract: Objective　To identify the effects of 5-fluorouracil (5-FU) and vincristine (VCR)

on stem cell-associated phenotypes and properties of gastric cancer cell line SGC-7901. Methods SGC-7901 cells were treated with 5-FU and VCR, respectively. Candidate stem cell markers of CD44 and CD133 as well as other stemness genes and epithelial-to-mesenchymal transition (EMT)-associated genes were assayed. Colony formation assay, sphere formation assay and tumorigenic formation assay were used to test the properties of SGC-7901 cells associated with cancer stem cells. Results After 5-FU and VCR treatment, the mRNA expression levels of CD44 and CD133 significantly increased in all the doses as compared with the control group (up to 2.36±0.03, 1.74±0.05, 6.03±0.75 and 4.06±0.77 folds respectively, $P<0.05$), but the capabilities of colony formation and tumorigenic formation had no change. VCR treatment manifested the EMT gene profile and showed different morphologic features in serum-free SGC-7901 cell culture, which was different from 5-FU treatment. Conclusion Transient treatment of 5-FU and VCR up-regulates the expression of CD44 and CD133. VCR induces EMT changes in SGC-7901 cells and enhances sphere formation in serum-free culture medium.

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