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论著

α1, 2-岩藻糖转移酶基因转染增加卵巢癌细胞系RMG-I Lewis y抗原的表达

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摘要 摘要：目的 将人α1,2-岩藻糖基转移酶(α1,2-FT)基因转染卵巢癌细胞系RMG-I并探讨细胞表面Lewis y及其他相关糖脂抗原的变化。方法 采用PCR方法克隆人α1,2-FT基因编码区HFUT-H, 构建表达载体pcDNA3.1(-)-HFUT-H, 利用磷酸钙法将其转染入卵巢癌细胞系RMG-I, 建立α1,2-FT基因稳定高表达细胞株RMG-I-H。通过酶活性测定证明转染前后细胞系α1,2-FT活性的改变, 采用薄层层析、薄层层析免疫染色方法测定转染前后细胞脂质及糖脂, 特别是Ⅱ型寡糖的变化。 结果 基因转染后细胞RMG-I-H中H-1抗原及Lewis y抗原显著增加, 特别是Lewis y抗原为转染前的20倍; 而Ⅰ型糖链Lewis b显著减少。转染前后细胞膜上的主要脂质成分胆固醇和磷脂质的含量没有变化, 且中性糖脂质也没有明显变化。结论 α1,2-FT基因转染增加α1,2-FT活性的同时, 增加卵巢癌细胞系RMG-I Lewis y抗原的表达; RMG-I Lewis y高表达细胞系的建立为研究Lewis y抗原与卵巢癌生物学行为提供了细胞模型。

关键词 卵巢肿瘤 α1,2-岩藻糖基转移酶 基因 转染 Lewis抗原

分类号

Transfection of α1,2-Fucosyltransferase Gene Increases the Antigenic Expression of Lewis y in Ovarian Cancer Cell Line RMG-I

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Abstract ABSTRACT:Objective To transfect human α1,2-fucosyltransferase (α1,2-FT) gene to ovarian cancer cell line RMG-I and investigate the antigenic expression change of Lewis y and the other related oligosaccharides. Methods The expression vector pcDNA3.1(-)-HFUT-H was constructed by polymerase chain reaction (PCR) to clone human α1,2-FT gene coding region. The α1,2-FT gene stable high-expression cell line RMG-I-H was established by transfecting pcDNA3.1(-)-HFUT-H to ovarian cell line RMG-I. The change of α1,2-FT activity in the cell line before and after the tranfection was confirmed by the determination of enzymatic activity. The changes of cell lipid and glucolipid, especially the change of type Ⅱ oligosaccharide, in the cell line before and after the transfection was determined by Thin-Layer Chromatography (TLC) and TLC immunostaining method, respectively. Results The H-1 antigen and Lewis y antigen were obviously increased in the cell line RMG-1-H, especially the latter one, which was 20 times higher than before, and the type Ⅰ saccharide chain Lewis b was decreased significantly. The main lipid components on the cell membrane, cholesterol and phosphatides, showed no change in the cell lines before and after the transfection, and the neutral glycolipid also showed no obvious change. Conclusions The transfection of α1,2-FT gene can increase the activity of α1,2-FT in the cell line RMG-I and mainly increase the expression of Lewis y antigen simultaneously. The construction of RMG-I Lewis y high expression cell line provides a cell model for further study on the relationship between Lewis y antigen and biological behaviors in the ovarian cancer.

Key words ovarian cancer α1 2-fucosyltransferase gene transfection Lewis antigen

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