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论著

反义翻译延伸因子TEF-1δ对氯化镉致癌性的逆转作用

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摘要 背景与目的： 翻译延伸因子TEF-1δ(基因文库新添编号为AF304351)是一个新发现的镉应答原癌基因。本研究之目的在于探讨反义TEF-1δ能否逆转镉转化细胞的致癌性。材料与方法：用磷酸钙介导转染法和G418细胞筛选技术，建立CdCl2转化BALB/c-3T3细胞反义TEF-1δ稳定表达系统，再用软琼脂检测和裸鼠致瘤试验对这些转基因细胞的致癌性逆转情况进行鉴定。结果：CdCl2转化BALB/c-3T3细胞中反义TEF-1δ表达可逆转这些细胞的转化表型，与非转染细胞和载体转染对照细胞比较，转染反义TEF-1δ的镉转化细胞在软琼脂上所形成的锚非依赖性生长集落减少29 %～44 %。转染反义TEF-1δ基因的镉转化细胞可延迟裸鼠出现肿瘤的时间，而且这些肿瘤的大小显著变小，肿瘤重量平均下降54 %～58 % 。结论： 反义TEF-1δ mRNA表达可逆转镉转化细胞的致癌性；应用反义TEF-1δ阻断TEF-1δ癌基因表达对镉诱发的肿瘤可能有治疗价值。

关键词 镉；反义TEF-1δ；逆转；致癌性

Antisense Translation ElongationFactor TEF-1δ Reversesthe Carcinogenicityof Cadmium Chloride

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Abstract BACKGROUND & AIM： Translation elongation factor TEF-1δ (Genbank Accession Number AF304351) was identified as a novel cadmium - responsive proto-oncogene. The objective of this research is to determine if antisense TEF-1δ reverses the oncogenic potential of Cd-transformed BALB/c-3T3 cells. MATERIAL AND METHODS： We first established stable expression system of CdCl2-transformed BALB/c-3T3 cells with the expression vector containing TEF-1δ cDNA in the antisense orientation using calcium phosphate and G418 selection protocols. Then the reversal of the oncogenic potential of these cells was tested by soft agar and nude mouse tumorigenicity assay. RESULTS: The results demonstrated that expression of the antisense TEF-1δ in the CdCl2-transformed BALB/c-3T3 cells resulted in reversal of the transformed phenotype of cells. This was evidenced by a 28 %～44 % decrease in the number of anchorage-independent colonies growing on soft agar and the significant reduced tumorigenic potential of cells in nude mice compared with the corresponding controls. In addition to a significant delay in the onset of appearance of tumors, a significant reduction in size and a 54 %～58 % decrease in weight of the tumors were also observed in mice injected with the TEF-1δ antisense expressing cells compared with the corresponding controls. CONCLUSION: These results indicate that antisense TEF-1δ mRNA expression reverses its oncogenic potential and targeting TEF-1δ expression through its antisense may have therapeutic value for cancer induced by cadmium.

Keywords cadmium chloride (CdCl2) antisense TEF-1δ reversal carcinogenicity

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