

论著

DNA错配修复酶hMSH2缺陷细胞株生物学特性

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摘要 目的 通过对hMSH2酶缺陷的基因工程细胞的生物学特性研究, 探讨错配修复酶hMSH2缺陷与肿瘤易感性的关系。方法 分别用普通光镜法、电镜法、细胞计数法、流式细胞术观察hMSH2酶缺陷细胞生长形态、超微结构、生长曲线及细胞周期, 并通过软琼脂培养法鉴定hMSH2酶缺陷细胞恶性程度。结果 hMSH2酶缺陷细胞体积增大, 有异型性改变; 细胞表面突起增多, 核浆比例增大; 细胞生长速度加快; 细胞内DNA含量增加, 出现G₁期阻滞; 不能在软琼脂中生长。结论 hMSH2酶缺陷细胞恶性程度增加, 肿瘤易感性增高, 但不属于恶性细胞, 可作为环境污染

物致突变性检测的生物材料。

关键词 [DNA修复](#) [生物学特性](#) [细胞周期](#)

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Abstract

AIM To find out the relationship between hMSH2 enzyme-deficiency and tumor susceptibility. **METHODS** Cell morphology, ultrastructure, growth character, cell cycle and growth status in half- solid culture medium of hMSH2-deficient cell strain, which was constructed by transfecting hMSH2 recombination plasmid of antisense RNA into human embryo lung fibroblasts(HLF), were observed with optical and electronic microscopy, cell counting, flow cytometry(FCM) and culturing in soft agar. **RESULTS** In hMSH2-deficient cells, the enlarged volume and increased granules were obviously observed as compared with HLF. After transfection with the expression plasmid of hMSH2 gene antisense RNA, there were a lot of morphological changes under electronic microscopy, such as irregular shape, a lot of protuberances on the surface of cell, the enlarged nuclei, etc. The average time of double increment of HLF and hMSH2-deficient cells was 1.0 d and 0.78 d, respectively. This suggested that the cell proliferation of hMSH2-deficient cells be greater than that of HLF. The distribution of HLF and hMSH2- deficient cells in G₁, G₂ and S phases were different. A large part of hMSH2- deficient cells was blocked in G₁ phase. The positive control HeLa cells could grow in soft agar forming cell clones, whereas the hMSH2-deficient cells could not. **CONCLUSION** The malignant degree of hMSH2- deficient cells had increased, but didn't belong to malignant cells and could be used as biologic material to detect mutagenesis of environmental chemicals.

Key words [DNA repair](#) [characteristic of cell biology](#) [cell cycle](#)

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