

# K562细胞转p16基因前后流变学特性的改变

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将p16抑癌基因转入p16阴性的人红白血病细胞株K562,采用微吸管技术并配合某些生物物理技术,研究K562细胞在转基因前后生物物理特性的改变。结果表明,p16基因的引入使K562细胞表面电荷密度增加,抗渗透破碎能力变差。用标准固体粘弹性模型拟合微吸管实验结果后,发现表征细胞最大变形能力的弹性系数 $K_1$ 增加,而另一弹性系数 $K_2$ 粘性系数 $\mu$ 无明显改变,说明p16使K562细胞刚性增大。这些结论将加深对p16基因抑制肿瘤转移和基因治疗理论和实验的认识。

## CHANGES OF BIORHEOLOGICAL BEHAVIOR OF K562 CELLS AFTER p16 GENE TRANSFER

p16 gene was transferred into human erythroleukemia cell line K562 with p16 deletion. The changes of biophysical behavior of K562 cells after gene transfer were studied with micropipette and some biophysical techniques. The results showed that p16 gene increased the surface charge and impaired the osmotic fragility of K562 cells. A standard solid viscoelastic model was employed to fit the data obtained by micropipette method. The elastic element  $K_1$ , which is inversely proportional to the maximum deformation for long period of time, was found increased while the viscous element  $\mu$  and another elastic element  $K_2$  were unchanged. This indicated that K562 cells became more rigid after p16 transfer. This study deepened our knowledge of the suppression effect of p16 gene on tumor metastasis and gene therapy.

### 关键词

K562细胞(K562 cells); p16基因(p16 gene); 微吸管(Micropipette); 生物流变特性(Biorheological characteristics)