

## 吸烟与姐妹染色单体交换1)

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收稿日期 修回日期 网络版发布日期 接受日期

**摘要** 用荧光加Giemsa(FPG)术区分姐妹染色单体, 分析了13名中年男子外周血淋巴细胞的SCE, 比较吸烟者和不吸烟者“自发”的和用丝裂霉素(MMC)诱发的SCE频率变化。发现吸烟者的SCE频率(8.33±1.08)显著地高于不吸烟者(4.41±0.72),  $p < 0.001$ 。用MMC诱发后吸烟者各剂量的SCE值也明显地高于不吸烟者( $p < 0.01$ ), 并随着MMC剂量的增加, 两者之间的差值增大。由于SCE的形成同DNA损伤后的修复机制有关, SCE频率的不同反映交换产生过程中体机重组修复系统的差异。因此, 吸烟者与不吸烟者SCE频率的差异, 表明两者在DNA修复机制上存在着差异。吸烟很可能改变了机体DNA损伤后的修复能力。

**关键词**

**分类号**

## Smoking and Sister Chromatid Exchanges

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### Abstract

The analysis of sister chromatid exchange (SCE) frequencies is a useful tool for the study of damages in genetic material of human beings induced by environmental mutagens and carcinogens. In the present study the 33258 Hoechst plus Giemsa method were employed to distinguish the sister chromatid. The frequencies of SCEd in the peripheral lymphocytes of 13 middle-aged males were analyzed so as to compare the "spontaneous" and MMC-induced SCE frequencies of smokers with those of nonsmokers. It was found that the smokers had a significant higher SCE frequency ( $8.33 \pm 1.08$ ) than non-smokers ( $4.41 \pm 0.72$ ),  $P < 0.001$ . When the cultured cells were treated with various dosage of MMC, the SCE frequencies in smokers are also remarkably higher than those in non-smokers ( $P < 0.01$ ). The difference between SCE frequencies of smokers and non-smokers is increased with the increase of MMC dosage. Since the formation of SCE is related to the mechanisms of post-replicative repair of DNA damage, the difference in SCE frequencies reflects the difference of recombinational repair system in organisms. Thus the variance of SCE frequencies in smokers and non-smokers shows that there is difference in their DNA repair system, and smoking might well have changed the capacity to repair the DNA damages.

### Key words

DOI:

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