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类核沉降法对三个着色性干皮病(XP)家系成员DNA修复能力的测定及杂合子的检出*

吴德丰, 傅明, 王秀琴, 吴旻, 墙克信, 霍正浩, 徐 方, 赵 巍, 焦海燕, 董进文; 赵伯敬, 彭亮, 陈银涛, 俞昭.
1 中国医学科学院肿瘤研究所, 北京 100021; 2 宁夏医学院生物学教研室, 银川

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摘要 应用类核沉降法, 分析了三个着色性干皮病家系中35名成员外周血淋巴细胞在紫外线(2.5μJ/mm2)照射和MNNG(2μg/ml)损伤后DNA修复能力。结果表明, 6名XP患者和9名杂合子DNA损伤手20小时尚不能完成修复, 他们11小时DNA修复率均值分别为UV, 0.61±0.13, 0,59±0.15和MNNG, 0.44±0.15, 0.46±0.16, 与家系中10名非血缘亲属正常人DNA修复率均值为UV, 0.96±0.07, MNNG, 0.71±0.07, 相比, 差异非常显著(P<0.01), 而XP患者和杂合子DNA修复率则无显著性差异(r>0.05)。提示, 类核沉降技术可能为XP家系中杂合子成员检出提供一种有希望的方法。

关键词 类核沉降法,DNA损伤修秒,着色性干皮病,杂合子
分类号

DNA Repair Capacity Measurement and Possibility of Heterozygote Detection Using

Wu Defeng1, Fu Ming1, Wang Xiuqin1, Wu Min1, Qiang Kexin2, Huo Zhenghao2, Xu Fan

1 Cancer Institute,Chinene Academy of Medical Sciences,Beijing; 2 Department of

Abstract

he nucleoid sedimentation test was used to analyse the DNA repair capacity in 35 members taken from 3 xeroderma pigmentosum (XP) families after their peripheral blood lympho-ctyes being exposed to UV irradiation or N-methyl-N-nitro-N-nitrosoguanidine (MNNG) at a dose of 2.5¦ÌJ/mm2 and 2¦Ìg/ml respectivtly.The results showed that the 6 XP patients all failed to repair their damaged DNA even after 20-hour incubation at 37¡æ.The repair ratios were 0.61¡À¡À0.13 for UV and 0.44¡À0.15 for MNNG while those of non-related normal members usually reached 0.96¡À0.07 and 0.71¡À0.07 for both UV and MNNG after 11-hour incubation.It is interesting to note that 9 obligatory heterozygotes (parents and grandparents of XP patients) and 4 highly possible heterozygotes (blood relatives of XP patients) also showed very poor DNA repair capacity:they could not accomplish their repair process even after 20-hour incubation.It has been showed that the nucleoid sedimentation test can probably be used to pick out the heterozygotes in XP families.

Key words Nucleoid sedimentation DNA damage repair Xeroderma pigmentosum Heterozyotes

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通讯作者