

论著

两种人类淋巴瘤母细胞TK、HPRT基因突变实验比较研究

张 勇¹; 张立实²,

1.重庆医科大学公共卫生学院营养与食品卫生教研室, 重庆400016; 2.四川大学华西公共卫生学院营养与食品卫生教研室, 成都 610041

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摘要 背景与目的: 比较2种人类淋巴瘤母细胞在4种受试物作用下TK、HPRT 2个位点突变情况, 为其在遗传毒性实验中的应用积累资料。材料与方法: 甲磺酸乙酯(ethyl methanesulfonate, EMS), 甲磺酸甲酯(methyl methanesulfonate, MMS), 乙二醛(glyoxal, GLY), 邻苯二胺(o-phenylenediamine, OPD)4种不同化学结构和致突变方式的致突变物作为受试物, 采用微孔培养板法比较TK6和TK6-E6细胞在TK和HPRT 2个位点的突变情况。结果: TK6-E6细胞比TK6细胞对4种受试物毒性更为耐受; 4种受试物在2种细胞, 2个位点突变实验结果均为阳性, 以TK6-E6细胞的TK实验最为敏感; TK6的慢生长集落比例(RSC)较TK6-E6低, 各受试物间无差别(P>0.05)。结论: TK6-E6和TK6细胞在TK、HPRT 2个位点的基因突变实验中均能检出致突变物; TK6-E6相对于TK6对细胞毒性耐受, 可以用于检测更高浓度的受试物, 同时有较高的突变敏感性。

关键词 [人类淋巴瘤母细胞](#); [基因突变实验](#); [甲磺酸乙酯](#); [甲磺酸甲酯](#); [乙二醛](#); [邻苯二胺](#)

Comparisons of Induced Mutations at TK and HPRT Loci Using Two Human Lymphoblastoid Cell Lines

ZHANG Yong¹, ZHANG Li-shi²,

1. Department of Nutrition and Food Hygiene, Public Health School of Chongqing Medical University, Chongqing 400016; 2. Department of Nutrition and Food Hygiene, West China Public Health School of Sichuan University, Chengdu 610041, China

Abstract **BACKGROUND & AIM:** Human somatic cells have species superiority over animal cells in genotoxicity assay. This study aimed to demonstrate the performance of specific gene mutation in two human lymphoblastoid cell lines with different p53 status for its further use in genotoxicity assay. **MATERIALS AND METHODS:** TK and HPRT mutation was induced by four chemical mutagens, including EMS (ethyl methanesulfonate), MMS (methyl methanesulfonate), GLY (glyoxal), OPD (o-phenylenediamine). Mutants were selected by microwell method. **RESULTS:** TK6-E6 was more tolerant to cytotoxic agents than TK6. All 4 agents induced positive mutation responses at two loci in two cell lines. The most sensitive mutation was at TK locus in TK6-E6. The RSC (rate of slow growth colonies) in TK6 was much lower than that in TK6-E6, and there was little variation in RSC to those mutagens. **CONCLUSION:** TK and HPRT mutation test in two cell lines could be used to assay genotoxicity. TK6-E6 was superior to TK6 in view of higher sensitivity and higher dosage treatment allowance.

Keywords [human lymphoblastoid cell](#) [mutation assay](#) [methyl methanesulfonate](#) [ethyl methanesulfonate](#) [o-phenylenediamine](#), [glyoxal](#)

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