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论著

WTK1细胞在tk位点突变和DNA损伤与修复中的应用

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摘要 背景与目的：为WTK1细胞在遗传毒理学可同时应用于基因突变和DNA损伤的研究提供实验依据。材料与方法：分别用标准诱变剂甲基磺酸甲酯(MMS)和过氧化氢(H2O2)处理WTK1细胞，采用tk基因突变试验和单细胞凝胶电泳技术(Single Cell Gel Electrophoresis，SCGE)对细胞的tk位点突变和过氧化氢诱发的DNA损伤情况进行检测。结果：甲基磺酸甲酯可诱发WTK1细胞tk位点的突变，以诱发染色体畸变为主。过氧化氢诱发了WTK1细胞DNA的损伤，并有剂量反应关系。随着修复孵育时间的延长，彗星细胞尾长和彗星细胞出现率明显下降,与对照组比较,差异有显著性(P < 0.01)。结论：WTK1细胞可同时应用于tk 基因突变和DNA损伤与修复的研究。采用该细胞株可对化合物进行基因突变和DNA损伤进行研究评价。

关键词 WTK1细胞；tk位点；突变；DNA损伤；DNA修复

Application of WTK1 Cells to tk Site Mutation and DNA Damage and Repair Capacity

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Abstract BACKGROUND & AIM: To provide a basis in tk gene mutation and DNA damage and repair capacity research in WTK1 cells in toxicology field. MATERIAL AND METHODS: The tk site mutation frequency and DNA damage as well as repair capacity were detected after WTK1 cells treated by MMS and H2O2 respectively. RESULTS: MMS induced tk site mutation, the mutation colonies mainly were slow growth mutants (SG－mutant) that was chromosome aberration in aberration category. H2O2 could induce DNA damage in WTK1 cells and showed dose-response relationship. The quantity and the tail－length of Comet cells decrease significantly with incubation time . CONCLUSION: WTK1 cells could be a useful biology material used for testing tk gene mutation, DNA damage and repair capacity induced by chemicals.

Keywords WTK1 cells tk site mutation DNA damage DNA repair capacity

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