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论著

SCGE,SCE和染色体畸变分析法用于DNA 损伤与修复检测的对比研究

马爱国，臧金林，宋风荣，张日金

青岛大学医学院医学营养研究所,山东 青岛 266021

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摘要 目的与方法:单细胞凝胶电泳技术(SCGE) 、姐妹染色单体交换法(SCE) 和染色体畸变分析法均能被用来检测DNA 的损伤或修复。通过对比研究了这3 种方法在DNA 损伤和修复检测中的灵敏度和准确性。结果:SCGE 检测H2O2 所致的DNA 损伤比SCE 更为灵敏,在H2O2 100μmol/ L 和200μmol/ L 剂量组,SCGE 检测到的DNA 损伤率分别达到45. 6 %和59. 5 % ,而姐妹染色单体交换法检测到相应2 个剂量组的DNA 损伤率仅为3. 4 %和5. 3 %。用染色体畸变分析法,H2O2 处理的4 个实验组的染色体畸变率与对照组无明显差异。结论: SCGE ,SCE 和染色体畸变分析法是在3 个不同水平检测DNA 的损伤和修复,SCGE 具有操作简便、快速、灵敏的优势。

关键词 SCGE SCE 染色体畸变 DNA 损伤 DNA 修复

COMPARISON RESEARCH OF SCGE, SCE AND CHROMOSOME ABERRATION FOR DETERMINING DNA DAMAGE

Ma Ai—guo, Zang Jin—lin, Song Feng—rong, Zhang Ri—jin

Institute of Human Nutrition, Medical College of Qingdao University, Qingdao 266021, China

Abstract Purpose and Methods : Single cell gel elect rophoresis (SCGE) , sister chromatid exchanges (SCE) ,chromosome aberrations are three methods to determine DNA damage and repair. The purpose of this study was to compare the sensitivity and accuracy of the three methods. Results : SCGE was the most sensitive one for detecting DNA damage induced by H2O2 . The rates of DNA damage at 100μmol/ L and 200μmol/ L of H2O2 were 45. 6 % and 59. 5 % measured by SCGE , and 3. 4 % and 5. 3 % by SCE , respectively. DNA damage induced by H2O2 was not detectable with chromosome aberration method. Conclusion : SCGE , SCE and chromosome aberration were considered to be used in three different levels , whereas SCGE was a quick , simple and more sensitive technique for detecting DNA damage and repair.

Keywords SCGE SCE chromosome aberration DNA damage DNA repair

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通讯作者