

APPLICATION OF UPG STAINING FOR ANALYSIS OF CHROMOSOME ABERRATIONS INDUCED BY LOW-DOSE ^{60}Co - γ -RAYS IN HUMAN PERIPHERAL BLOOD LYMPHOCYTES IN VITRO

Zhang Hongyuan Pan Yusha Wan Lanjin

(The Naval Medical Research Institute, Shanghai)

ABSTRACT Human peripheral blood lymphocytes in vitro were irradiated by ^{60}Co - γ -rays with 0.0489-0.524 Gy. By using UPG staining technique, the dose response relationships of chromosome aberrations were studied. The analysis of exclusively M_1 cells, revealed surely aberration scored yields as compared with the results of the conventional method. The data of dicentrics plus centric rings of M_1 cells give a good fit to linear or linearquadratic model in this dose range, and the data of acentrics give a good fit to linear model. Finally, the results were discussed with regard to the application of dicentrics plus centric rings and acentrics for a cytogenetic dosimetry after exposure to low levels of ionizing radiation.

KEY WORDS Low-dose; Chromosome aberration; Acentric fragment; Dicentrics; Dose-response curve; UPG.

联合研究开发辐射交联电线电缆

中国科学院近代物理研究所与铁道部通信信号公司天水铁路电缆信号工厂经过长期酝酿协商, 决定联合研究开发辐射交联电线电缆, 合同已生效, 工作正在开展。根据合同, 近代物理所侧重于辐照设备引进和辐射技术方面工作, 天水铁路电缆信号厂侧重于电缆生产设备和工艺方面的改造等工时。这一总投资 900 万元的项目经过双方的努力, 将把电子束辐照交联这一新技术应用于电线电缆制造工业, 建设一条年加工能力 1200 吨交联聚合物的生产线, 开发四种类别的辐照交联电缆。项目全面完成后, 厂方将具有向铁路运输等部门提供多种高性能, 长寿命优质电缆的能力, 预计实现利税能力将每年增加 1000 万元。

(中国科学院近代物理研究所, 兰州, 宋文杰供稿)