

RADIATION-INDUCED DNA SINGLE STRAND BREAKS AND THEIR REJOINING IN MAMMALIAN CELLS BY HYDROXYLAPATITE CHROMATOGRAPHY

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ABSTRACT The ^{60}Co γ -ray induced single strand breaks of DNA and their rejoining in cultured chinese hamster lung (CHL) cells and mouse spleen cells isolated freshly from mice were detected by hydroxylapatite chromatography. The method is based on the observation that the rate of denaturation of DNA to single strands in alkali is increased after irradiation, the interpretation being that this effect is due to DNA strand breaks. The percentage of labeled DNA that remained double strand after 30 min alkali treatment was inversely proportional to the radiation dose within the range of 1-10Gy for the two kinds of cells.

The DNA strand breaks in unirradiated spleen cells was more than in unirradiated CHL cells, but the yield of breaks induced per 0.01Gy was found to be similar in the spleen cells and CHL cells. In contrast with these findings, most DNA strand breaks in the CHL cells were rejoined within 30min, the breaks were rejoined faster in the cells incubated in medium with 20% new born calf serum after irradiation than in medium without any serum. The repair of damaged DNA could not be detected in the spleen cells cultured in RPMI 1640 medium without any serum.

KEY WORDS Hydroxylapatite chromatography; DNA strand breaks; DNA repair; CHL cells; Mouse spleen cells.

简 讯

放射增敏研究及其它在肿瘤放疗上的应用学习班举办

辐射研究与工艺本学会委托上海医科大学放射医学研究所于87年9月3日~8日,举办了首次“放射增敏研究及其它在肿瘤放疗上的应用”全国学习班,学员来自北京、天津、南京、沈阳、浙江、上海等地。学习班由英国医学研究委员会放射生物研究所 Ian. J. Stratford 博士主讲,同时邀请国内有关专家林念芸、刘仁忠、沈瑜、刘泰福、徐素娟、郑秀龙以及上海医科大学中山医院汤剑猷教授,肿瘤医院院长曹世龙教授进行讲学。学习班内容比较系统全面,最后 Stratford 博士综合介绍了不久前在英国爱丁堡召开的第8届国际辐射研究会议中有关放射增敏研究的最新进展。学员普遍反映收益很大,这次学习班对我国今后放射增敏研究的开展,将起有一定的推动作用。

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