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交叉学科

P53及其相关蛋白对X射线照射肝癌细胞周期的调节

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摘要

X射线照射人肝癌细胞HepG2， 照射后细胞存活随照射剂量增大明显下降。 流式细胞术分析， 不同剂量组照射后24 h均发生G2期阻滞。 照射后不同时间组的细胞周期分布也有不同， 照射后12 h， 有显著的S期延迟。 Western Blot 显示照射后24 h P53， MDM2， P21蛋白表达上升， 并有时间效应： P53在照射后24 h之内始终维持较高表达, MDM2和P21分别在照射后6和12 h的表达最高。 X射线照射通过影响P53及其相关蛋白的表达影响细胞周期。

HepG2 cells were irradiated with X ray at the doses of 0, 1.0, 2.0, 4.0 or 8.0 Gy and separately maintained in DMEM at 37 ℃ for 0, 6, 12 or 24 h. Colony forming assay showed that cell survival decreased with the irradiation dose increasing. Cell cycle was detected by FACS, the arrest of S phase was found after 12 h irradiation and arrest of G2 phase took place at 24 h after all irradiation doses, which suggested that cell cycle distribution was different in groups gathered after different maintaining time. The results of Western blotting showed that the expression of P53, MDM2 and P21 increased more after irradiation than the control. The expression of P53 remained high at 24 h after irradiation, while the levels of MDM2 or P21 arrived at the highest at 6 h or 12 h after irradiation respectively. The expressions of P21 after irradiation were in corresponding with the cell cycle distribution in the groups of different maintaining time. In conclusion, irradiation change the distribution of cell cycle by effecting the expression of P53 and its related proteins.

关键词 X射线照射； HepG2； 细胞周期； P53； P53相关蛋白

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