

Radiation sensitivity (203-212)

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The Relationship Between Residual Interphase Chromosome Breakage and Cellular Radiosensitivity in Transformed Syrian Golden Hamster Cells

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Using the premature chromosome condensation technique, we studied the relationship between interphase chromosome breakage and radiosensitivity in transformed hamster cell lines with radiosensitivities ranging the mean inactivation dose from 3.46 to 4.84 Gy. The initial number of chromosome breaks was almost the same in four cell lines. The number of residual chromosome breaks after 6 h postirradiation incubation, on the other hand, varied considerably among cell lines, and a linear relationship was found between residual chromosome breaks and lethal lesions. These results are indicative of the fact that difference in radiosensitivity of transformed hamster cell lines is due to the ability of cells to repair chromosome damage.

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Radiosensitivity of Cultured Three Human Pancreatic tumor cells

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We investigated the survival of three human tumor cell lines after treatment of single dose radiation during exponential growth. The tumor cells were derived from three pancreatic tumor (MIA-PaCa-2, Panc-1 and BX-Pc-3). The tumor cells were grown in Dulbecco's modification of Eagle's MEM supplemented with 10%FBS.

The radiosensitivity of these cell lines were similar to that of HeLa-S3, and there is no marked difference in radiosensitivity (D_0) between these cell lines (ranged from 1.4 to 1.6Gy).

After irradiation (2, 5, 10, 20 and 30Gy) the cell number and trypan blue staining were studied at various post irradiation times. After a dose of 2 or 5Gy the growth curve showed a delay of few hours, then the cell number increased. After 10Gy the cell count increased very little, then the cell number decreased (Panc-1 and BX-Pc-3: 4day after irradiation). But, the cell number of MIA-PaCa-2 did not decreased even after 7 days.