

Cytogenetic analysis of early and delayed chromosome aberrations in Chinese hamster cells after ^{60}Co γ -irradiation

At the Laboratory of Radiation Biology, JINR, early and delayed mutagenic effects of ionizing radiation exposure are studied in mammalian cells. We studied the effect of ^{60}Co γ -radiation (2 and 5 Gy) on V79 Chinese hamster cells. A chromosome aberration assay was conducted at different times after exposure (3 h —40 days). The maximum yield of cells with chromosome aberrations and the highest total number of chromosome aberrations were observed within the first hours after exposure. These indicators decrease during further cultivation. Chromatid-type aberrations prevail in the first hours after irradiation —up to 80 % of the total number. Later (up to 40 days after irradiation), chromosome-type aberration yield increases —up to 60 –90% of the total number. HPRT-mutant colonies induced by ^{60}Co γ -irradiation were obtained at different expression times after irradiation (3 –40 days). It has been found that an increased mutagenesis frequency lasts up to 20 days after irradiation.

The obtained data indicate the induction, and preservation, of chromosomal instability in many generations of the irradiated cells.

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