

Some peculiarities of the He - Ne laser radioprotective action

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The combined effect of 633 nm laser radiation and ^{60}Co gamma - rays on C3H10T1/2 murine fibroblast cells survival has been studied. A cell monolayer in the wall's surface of the 25 cm² plastic flasks was irradiated to gamma- radiation and then to laser light in experiments. All the surface of the 5 cm x 5 cm flask's wall or just a 1 cm x 1 cm central part of them has been exposed to laser beam for the bystander effect investigation. 40 minutes after the irradiation cells locating on the surface both of control and all irradiated flasks were dispersed with 0, 25% trypsin solution and seeded for the survival assay. Carried out experiments showed that independent of the size of the surface of the cells monolayer irradiated to laser light, is observed practically the identical radioprotective effect of laser irradiation. . Further investigation of the mechanism of radioprotective effect of the 633 nm optical radiation on fibroblast cells shows that the radioprotective action of the laser radiation is transferred to the fibroblast cells according to the mechanism of the "bystander" effect via direct intercellular communication through gap junctions, as well as via medium transfer from the irradiated with laser radiation ones to non irradiated cell population. The radioprotective action of laser radiation was established also when unirradiated cells were co-cultured as a mixture with irradiated cells.