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EFFECTS OF AN ANTIMUTAGEN OF 1,4-DIHYDROPYRIDINE SERIES ON CELL SURVIVAL IN X-IRRADIATED MURINE L5178Y SUBLINES

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Earlier the experiments on Drosophila and mice have shown that some derivatives of 1,4-dihydropyridine (1,4-DHP) are effective antimutagens and protect somatic and germ cells of animals against chemical mutagens [1, 2]. The revealed pattern of inhibiting spontaneous and chemical mutagenesis suggested multiple mechanisms of their action, in particular, owing to their antioxidant activity and their effect on organismal protective systems. By means of conventional approaches, taking into account the effect of maternal repair and different repair ability of pre- and post-meiotic spermatogenesis stages, it was shown that the most effective antimutagens, namely, DHP and glutapyrone, can modulate DNA repair resulting in reduction in the frequency of EMS-induced chromosome breakage and point mutations [3]. It was assumed that these effects of 1,4-DHP derivatives may be due to their interference in NAD(NADP)-dependent energy processes and ADP-ribosylation [4]. To study such a possibility, testing of one of the derivatives (DHP) *in vitro* was undertaken using murine lymphoma cell lines L5178Y (LY-R) and L5178Y-S (LY-S) differing in both radiosensitivity and in the content and metabolism of poly(ADP-ribose) polymers [5]. DHP cytotoxicity was studied by the Trypan blue standard test; the doses 10^{-9}, 10^{-6} and 10^{-4}M were non-toxic for both lines. A tendency to stimulation of cell proliferation in LY-S cells was observed; this effect was statistically significant for the 10^{-6}M concentration. Since the cell lines differed

in radiosensitivity, approximately equitoxic doses of X–rays were used for irradiation: 1 Gy for LY–S and 2 Gy for LY–R cells. Cells were treated with the same doses of DHP for 1 h prior to irradiation. X-ray-induced cell death did not change under the DHP influence in the LY–R line and was greatly reduced in the LY–S line. Thus, DHP increased both the background and radiation-induced level of cell viability in LY–S cells and did not affect this parameter in LY–R cells.

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