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PAPER TITLE Effects of ionizing radiation and early treatment agents
on hepatic regeneration

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ABSTRACT (See instructions overleaf) The purpose of this work was to study the action of radiomodifying drugs of detoxicators (gluconeodes) and immunomodulators (interleukin- 1β) classes on reparation (a model of regenerating liver). Outbred white male rats weighing 160-200 g were used in the experiments. The animals were irradiated at a dose of 6.75 Gy using IGUR-1 source at a dose rate of 1.58 Gy/min. 1, 4, 24 or 72 hours after irradiation the left and central lobes of the liver of the animals have been removed. The intensity of regeneration was judged by insertion into their DNAs of ^3H -thymidine, which was administered to the rats 20 hours after hepatectomy. As a result of the experiments, it has been established that hepatic regeneration in irradiated rats with hepatectomy having been performed 1 or 4 hours after radiation exposure has been completely inhibited. One day following radiation exposure, the intensity of regeneration was 60% of the norm. On day 3 after radiation exposure, the rate of regeneration normalized. Single administration of gluconeodes for therapeutic purposes led to an insignificant acceleration of the regeneration process as compared to irradiated control (with hepatectomy 1 and 4 hours after irradiation). A significant effect of this agent (after single or 3 times a day administration) has been revealed on days 1 and 3 of radiation sickness when the rate of hepatic regeneration 1.5-2 times exceeded the norm. Similar effect has been revealed after a single dose of interleukin- 1β (25ug/kg). Thus, the mechanisms of action to different classes of compounds have a similar positive effect on the processes of regeneration.