

- 92 Effects of Administration of Co Element in Splenocytes and Myelocytes of Mice Exposed to X-rays.
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In previous papers, we have studied on metabolism and biochemical states of Zn, Mg and Co to elucidate a mechanism of radioprotective effects of these elements in mice exposed to gamma-rays of sublethal dose. In this report, we investigated incorporation of Co (CoCl_2 and carrier free $^{57}\text{CoCl}_2$) in splenocytes or myelocytes of mice exposed to X-rays with dose of 1~2Gy, and studied on effects of administration of Co *in vivo* (subcutaneous injection, 20mgCo/kgWeight + $^{57}\text{CoCl}_2$) and the addition of Co ($4\mu\text{gCo}/0.2\text{ml}$ culture medium + $^{57}\text{CoCl}_2$) *in vitro* in relation to the radioprotective mechanism.

The incorporation of Co in splenocytes/myelocytes increased (over 20%) with irradiation dose by addition of carrier Co *in vitro*, but decreased (below 40%) with irradiation dose in mice administered with the element *in vivo*. These results suggest that the mechanism of incorporation of Co element is different between the addition *in vitro* and the administration *in vivo*.

- 93 Modification of Acute Radiation Effects by Virus Infection
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The effect of virus infection was examined on survival of mice which were irradiated with X-rays. C3H male mice (10-15 weeks old) were inoculated with Friend leukemia virus (FLV, 10^4 PFU/mouse) and then exposed to X-rays at a dose rate of 1Gy/min with graded doses (0.5-3.0 Gy) and at various time intervals (3, 7, 14, 21days) after inoculation. The lethality of mice was examined for 30 days after irradiation. When the mice were irradiated on 7th day after infection, the percentage of surviving mice decreased with increasing the dose. When mice were exposed to 3Gy of irradiation, more than 90% of mice died around 15 days after irradiation, whereas all mice without virus infection survived after irradiation. But this deleterious effect of virus infection on survival of irradiated mice was observed only when they were irradiated on 7th day after virus inoculation. Strain difference on the induction of this effect was examined among CBA/N, DBA/2, B10, C4W, B10.BR and B10.D2 strain mice. The deleterious effect was induced in the C3H and CBA/N mice and that for C3H mice was severer than for the CBA/N mice.

- 94 Role of Gap Junctional Intercellular Communication to Radiosensitivity in Rat Liver Epithelial Cell Lines
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The gap junctional intercellular communication (GJIC) is supposed to be one of the most important factors in the cellular response to ionizing radiation. In order to investigate the role of GJIC in the mechanism of radiosensitivity, we compared the radiosensitivity of a rat liver epithelial cell line, WB-F344 and its GJIC-deficient mutant, WB-aB1. Colony formation assay after irradiation with X-rays (150 kVp) revealed that (1) WB-F344 was more sensitive than WB-aB1, when they were irradiated at nearly confluent conditions, and (2) WB-F344 was less sensitive when irradiated at lower cell density. These results suggest that GJIC enhances the cellular radiosensitivity of WB-F344.