

141 **Modification of Radiosensitivity by Low Dose Irradiation - VI.**

*Morio YONEZAWA, *Yasushi HOSOKAWA and **Jun MISONOH, *Res. Inst. Adv. Sci. Tec., Univ. Osaka Pref., Sakai 593, **CRIEPI Komae Res. Lab., Komae 201.

Pre-irradiation of mice (ICR strain) results in two types of acquired radioresistances (increase in the 30-day survival rate after sublethal X-irradiation) depending on the pre-irradiation doses; with 0.3-0.5 Gy it appeared 2 weeks later, and with 0.05 Gy 2 months later. In the present study, partial preirradiation of mice with 0.5 Gy was tested whether head and/or trunk preirradiation results in the radioresistance 2 weeks thereafter. Preirradiation of trunk or whole-body resulted in significant radioresistance. But that of head did not. Therefore, response of blood-forming tissues, not central nervous system, is important for acquiring radioresistance in this dose range of the preirradiation.

142 **Dose and Dose Rate Effectiveness Factors of Radiation Induced Myeloid Leukemia in C3H male mice.**

*Takeshi FURUSE, *Yuko NODA, *Kumie Nemoto, **Akihiro Shiragai, ***Norikazu YASUDA, *Hiroshi OTSU; Natl. Inst. Radiol. Sci.*Division of Physiology and Pathology,**Division of Physics,***Director of Special Research;Chiba 263.

C3H male mice were exposed for 22 hours daily to several dose -rate and dose levels from Cs gamma-rays. The animals were then maintained for their normal life span. Dead mice were pathologically examined to estimated incidences of myeloid leukemia and other neoplasms. Dose effect curves for myeloid leukemia incidences in high-dose-rate(H:88.2cGy/min) groups and in two low-dose-rate (A:0.0298cGy/min,C:0.0016cGy/min) groups were obtained. There was no relationships between life shortening ratio and dose rate. Dose and dose rate effectiveness factors were estimated from linear regression line of these dose effect curves as 5.5 between H and A group, 11.7 between H and C group.

143 **Effects of Repeated Irradiation on a Biological Response with High Sensitivity to Exposure (IV)**

*Masahiro YOSHIDA, ***Jun MISONOH, *Yutaka OKUMURA, ***Mariko MINE, *Tatsuya SHIMASAKI, ****Seiji KODAMA ; * Nagasaki Univ. Sch. of Med., Atomic Disease Inst., Nagasaki 852, **CRIEPI, Komae 201, ***Nagasaki Univ. Sch. of Med., Scientific Data Center for Atomic Disaster, ****Nagasaki Univ. Fac. of Pharm. Sci., Nagasaki 852.

Low dose irradiation of mice causes temporary inhibition of incorporation of ¹²⁵IUdR. We investigated the degree of inhibition of IUdR uptake into small intestine, spleen and thymus at 4 hours after single and split dose exposure. Balb/c mice were exposed to 0.05 ~ 0.2 Gy of X-rays 4 hours after preirradiation with 0.05 Gy. ¹²⁵IUdR incorporation into spleen and thymus 4 hours after second irradiation decreased in proportion to the total dose. In spleen and thymus, however, the degree of inhibition of IUdR incorporation by second exposure was smaller than by single irradiation with 0.1 ~ 0.25 Gy. The inhibitory effect of IUdR uptake by second exposure was similar to that obtained by the single irradiation in small intestine.