

Effects of *In Utero* Low Dose-rate Gamma-ray Exposure in B6C3F1 Mice

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Abstract

We have completed breeding experiments in mice exposed for 18 days *in utero* to 20 and 200 mGy/day gamma-rays alongside age-matched non-irradiated controls. Pregnancy rates were significantly lower in the 200 mGy/day irradiated group; the numbers of implantation sites and live fetuses were significantly decreased in the 20 mGy/day irradiated group. Compared to the non-irradiated controls, estrus cycles were not significantly different in female mice irradiated at 20 mGy/day but were significantly decreased in the 200 mGy/day irradiated group.

We have completed the animal experiments on the late effects of *in utero* radiation exposure. Significant decreases in lifespan of both male and female mice irradiated at 400 mGy/day were observed. Mortality from liver tumors was increased, while that of lymphoma decreased in both males and females irradiated at 400 mGy/day. Although no significant effect on life span was observed in the 20 mGy/day irradiated group, there was an increase in mortality due to liver tumors in females.

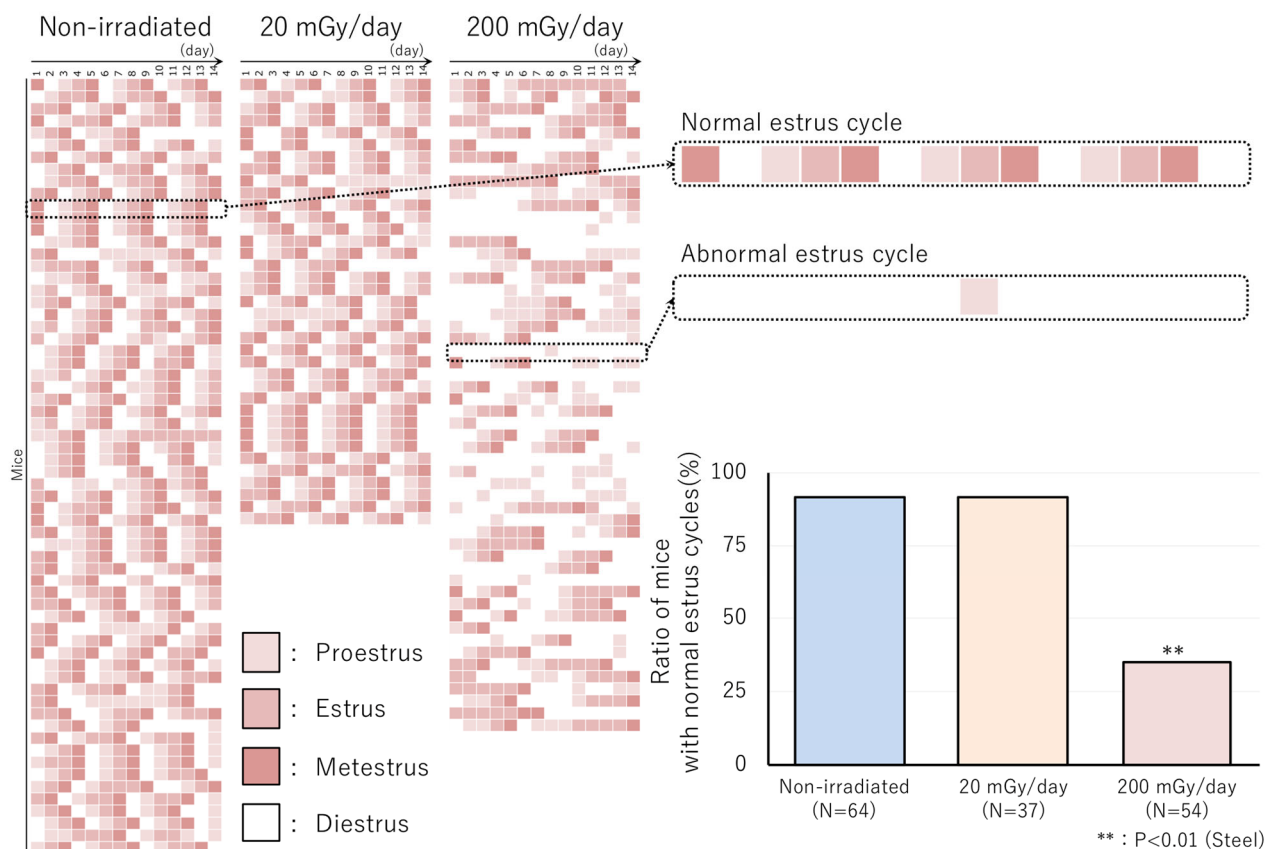


Fig.1 Estrus cycle monitoring in female mice exposed to gamma-rays at low (20 mGy/day) and medium (200 mGy/day) dose-rates *in utero* from gestation days 0-18 as compared to the non-irradiated controls.

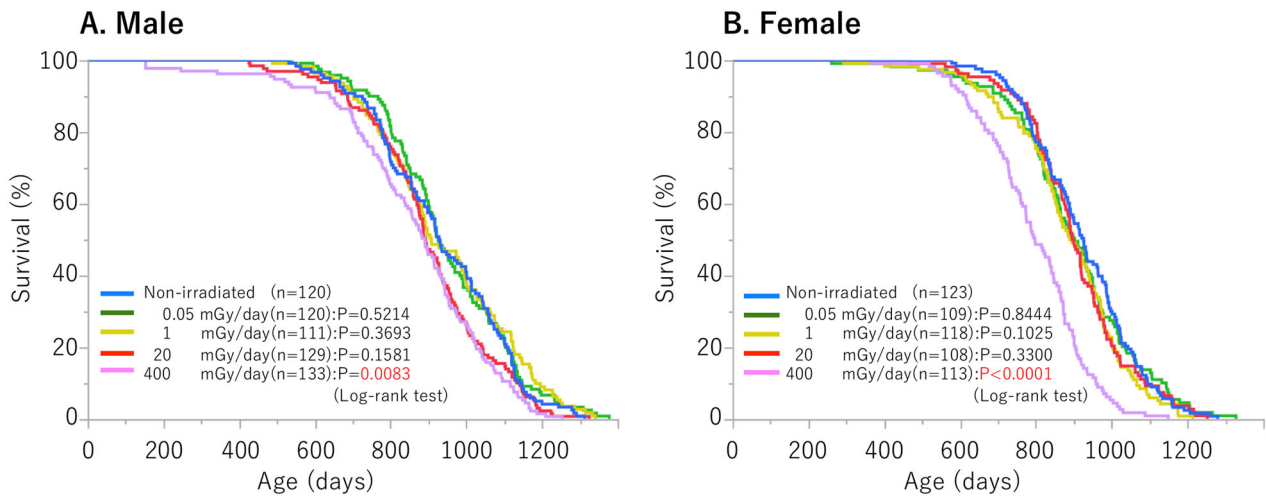


Fig.2 Survival curves of (A) male and (B) female mice exposed to gamma-rays at low (0.05, 1 and 20 mGy/day) and medium (400 mGy/day) dose-rates *in utero* from gestation days 0-18.