

# Transgenerational Effects in the Progeny of Mice Exposed to Acute High and Chronic Low Dose-rate Gamma-rays – Life Span, Cause of Death, Neoplasm Incidence –

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## Abstract

To study the effects of radiation exposure on progeny, male (sires) C57BL/6J mice were irradiated with  $^{137}\text{Cs}$  gamma-rays at an acute high dose-rate (HDR) of 770 mGy/min to a total accumulated dose of 3000 mGy, or at a chronic low dose-rate (LDR) of 20 mGy/day for 150 or 300 days to total accumulated doses of 3000 mGy or 6000 mGy. After completion of irradiation, the male mice were bred to non-irradiated virgin females to produce F1 mice. All mice, except the dams, will be kept until they succumb to a natural death and then they will be subjected to pathological examination. The number of offspring, lifespan and neoplasm incidences will be used as parameters to evaluate the biological effects of high and low dose-rate radiation exposure. As of March 31, 2019, the pregnancy rate was significantly ( $P < 0.05$ ) decreased in the HDR group as compared to the non-irradiated control group. As of March 31, 2019, there was no significant difference in the survival curves of the male parent mice.

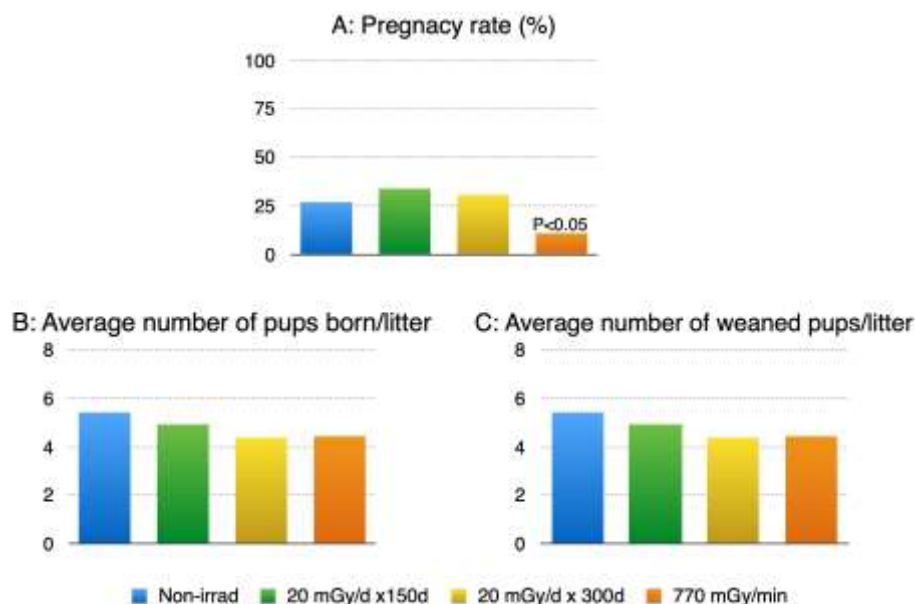


Fig. 1 Reproductive parameters

A: Pregnancy rate (%) = (number of female mice with implantation sites / number of females bred) .

B: Average number of pups born/litter = total number of pups born / number of pregnant female mice.

C: Average number of weaned pups/litter = Total number of weaned mice / number of pregnant female mice

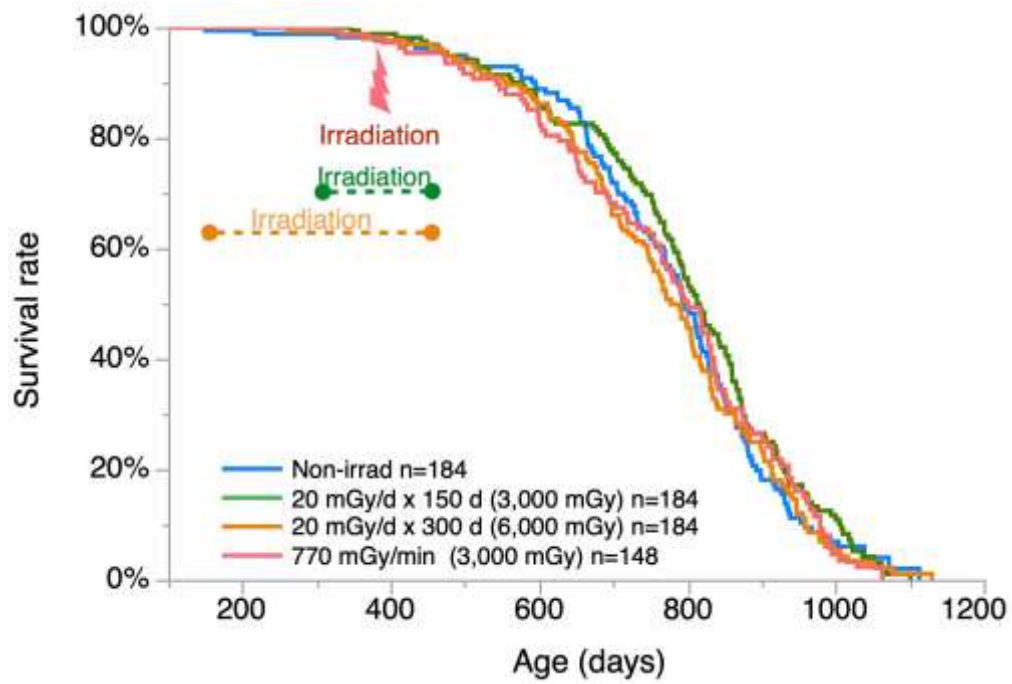


Fig. 2 Survival curves of male (irradiated sires) mice as of March 31, 2019