Endocrine Dysfunction and Neoplasia in Female B6C3F1 Mice Exposed to Chronic Low Dose-rate Radiation

Shingo NAKAMURA, Ignacia TANAKA, Jun-ichiro KOMURA, Satoshi TANAKA
Department of Radiobiology

Abstract

The objective of the study is to investigate the mechanism(s) through which the systemic effects of radiation-induced endocrine dysfunction of the ovaries lead to increased liver neoplasm incidence. Last fiscal year, we established a system to prevent weight gain (obesity) in the study mice, using a feeder fitted with an automated timer. This fiscal year, we confirmed that weight gain was prevented in B6C3F1 female mice exposed to chronic low dose-rate of gamma rays by restricting the feeding time using our designed feeder. Radiation exposure is still in progress alongside feeding time restriction experiments using the established methodologies.

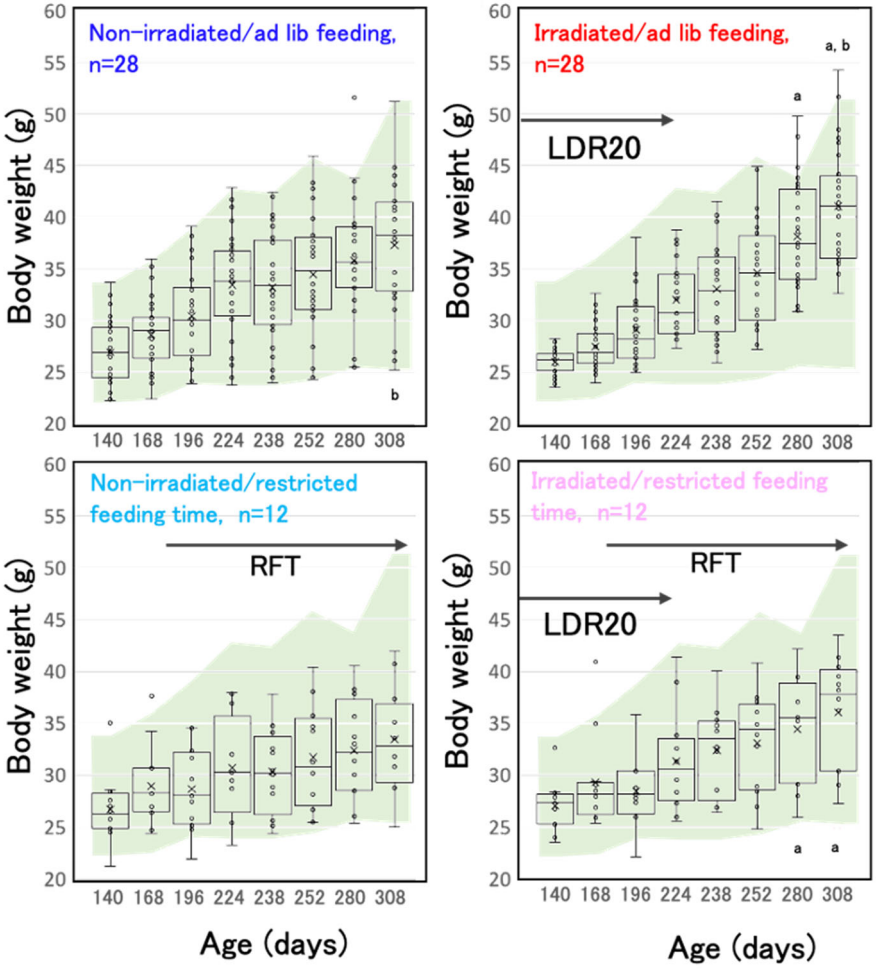

Fig.1 Effect of restricted feeding time (RFT) on body weights in mice exposed to low dose-rate (LDR20) gamma-rays compared to non-irradiated controls. Body weights were measured every 4 weeks. The light green areas indicate variations in the body weights of the non-irradiated /ad libitum-fed group and they are used as the reference standard for body weight changes with age. (○) = individual mouse body weights; (X) = group average body weight. (a) $P < 0.05$ between ad libitum fed and RFT irradiated mice at 280 and 308 days-old; (b) $P < 0.05$ between ad libitum fed non-irradiated and irradiated mice.