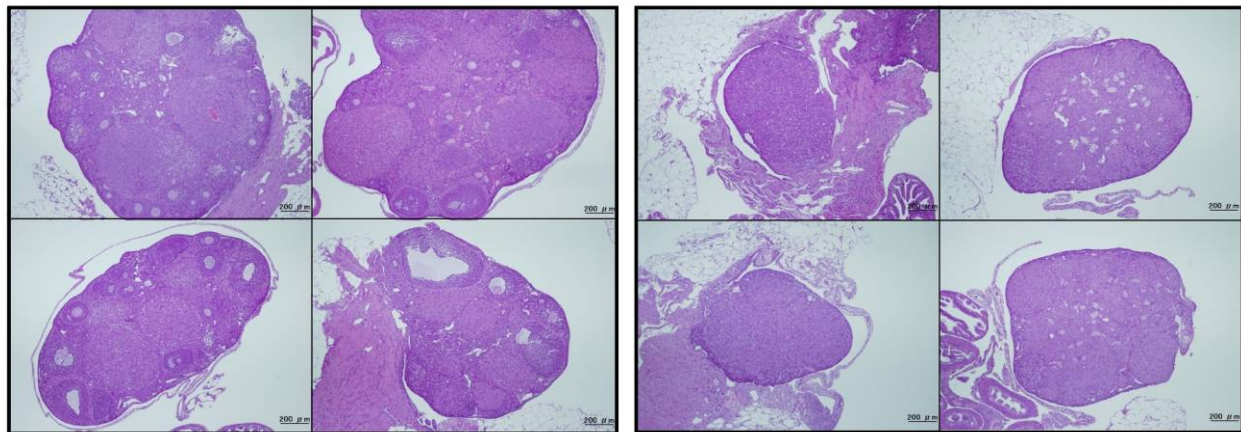


# Factors Related to Increase in Body Weights of B6C3F1 Female Mice Continuously Irradiated with Low-Dose-Rate Gamma-Rays

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## Abstract

We previously showed evidence that the increased lipid content in the liver, sera and adipose tissues of B6C3F1 female mice continuously irradiated with low-dose-rate (LDR)  $\gamma$ -rays at 20 mGy/22h/day contributed to the development of adiposity and an increase in intra-abdominal adipose tissue mass leading to body weight increase (*Radiat. Res.* **173**, 333-341, 2010). To clarify the factors that may contribute to the increase in body weight, the processes and outcomes of body weight increase, tissue adiposity and ovary atrophy were examined in female B6C3F1 mice continuously exposed to  $\gamma$ -rays at 20 mGy/22h/day from 9 weeks of age. Significant increase in body weight and adiposity were observed at 28 weeks (37 weeks of age) from the start of irradiation, and ovarian atrophy appeared to precede the increase in body weight and adiposity. In addition, significant increases in body weight, adipose tissue mass, serum leptin and lipids were observed in female mice continuously irradiated with  $\gamma$ -rays at 100 mGy/22h/day at 7 weeks from the start of irradiation.



**Non-irradiated control** **Irradiated**

Fig. 1 Atrophy of ovaries in the mice at 21 weeks after irradiation. Mice were continuously irradiated with  $\gamma$ -rays at 20 mGy/22h/day from 9 weeks of age. Hematoxylin and eosin staining of histological sections from ovaries (original magnification x 40).

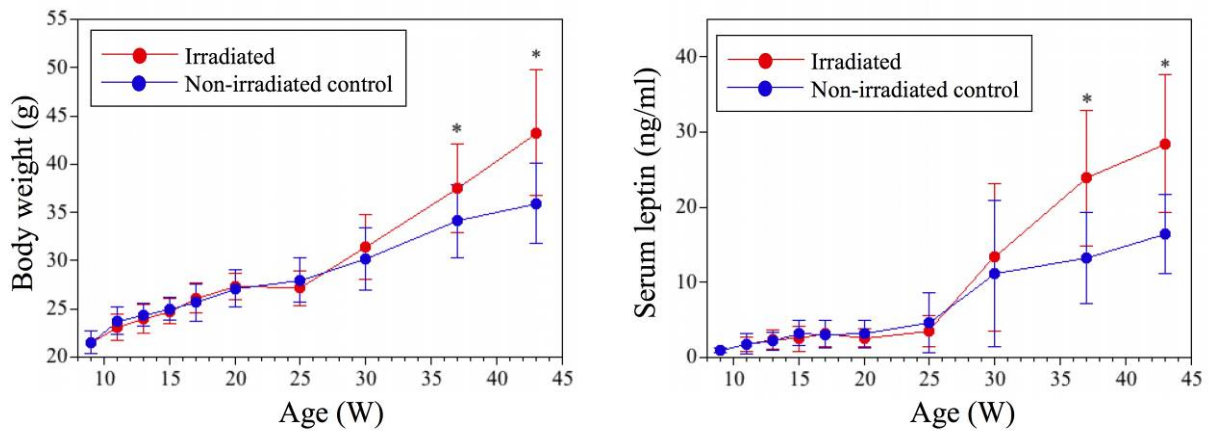


Fig. 2 Alterations of body weight and serum level of leptin during the irradiation period. Mice were continuously irradiated with  $\gamma$ -rays at 20 mGy/22 h/day from 9 weeks of age. Values represent the mean  $\pm$  SD (n = 15-20). Asterisks indicate significant differences ( $P < 0.05$ ) using the Student's *t* test.