Latency Period of Malignant Lesions in Mice Exposed to Continuous Low dose-rate Gamma-rays -Analysis of Serum Proteins-

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Abstract

Our previous study has revealed that exposure of mice to continuous low dose-rate gamma-rays (LDR: 21 mGy/22 h/day) shortens the life span by approximately 120 days due to premature death from various neoplasms including malignant lymphomas. We have been performing gene expression analyses using microarray to search for bio-active molecules that are serologically detectable in LDR-irradiated mice or in mice that develop neoplasms after LDR-irradiation. Results of the microarray analyses, which were focused on liver adenoma, suggest that alpha-1B-glycoprotein (A1BG) may be a good marker of LDR radiation-induced liver tumors. The concentration of A1BG in sera of mice with liver adenomas after irradiation was lower compared to mice not exposed to radiation. Therefore, we conclude that A1BG is usable as a serological marker to analyze radiation-induced liver tumor development in LDR-irradiated mice.

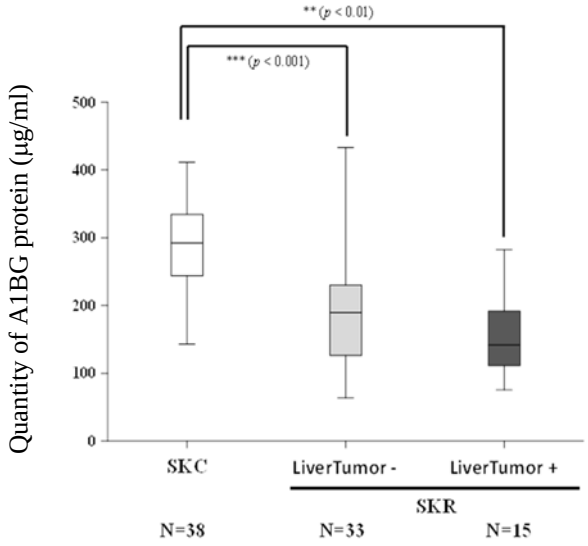

Fig. 1 Quantitative analysis of A1BG protein in mice sera.
SKC: Non-irradiated mice, SKR: LDR (20 mGy/22h/day) - irradiated mice