

Comparison of Tumor Transplantability in Mice Exposed to Control or Enriched Environment

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Abstract

We have previously shown that the transplantability of a murine ovary granulosa cell tumor cell line, OV3121, was significantly enhanced in syngeneic B6C3F1 mice continuously irradiated with low dose-rate (20 mGy/day) γ -rays to a total accumulated dose of 8000 mGy. In the present report, two experiments were designed to clarify whether the tumor transplantability enhanced by γ -irradiation can be alleviated by environmental enrichment. Mice were exposed to an enriched environment before (Expt 1) or after (Expt 2) tumor transplantation. Results of Expt 1 showed that tumor transplantability was reduced when tumor cells were transplanted in both non-irradiated and irradiated (high dose-rate γ -rays = 770 mGy/min, total dose = 3 Gy) mice after exposure to an enriched environment. In Expt 2, tumor transplantability was not significantly different between groups of mice exposed to an enriched environment using a normal (C) or large cage (EE-L) after transplantation.

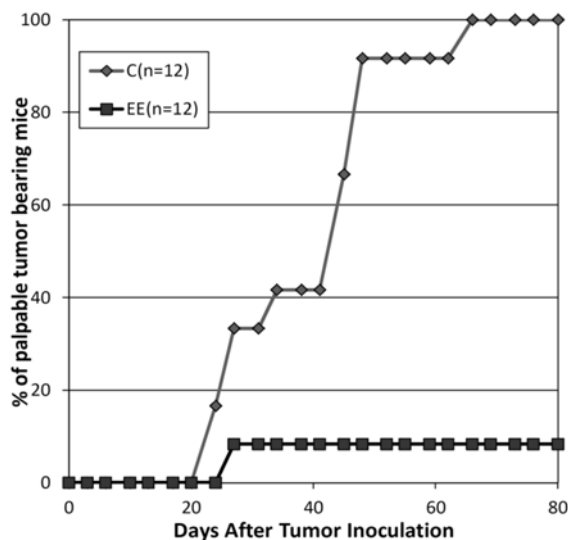


Fig. 1 Comparison of tumor transplantability. Mice were inoculated with OV3121 cells after a 5-week exposure to an enriched (EE) or control (C) environment. Mice with palpable tumors were counted to assess transplanted tumor formation.

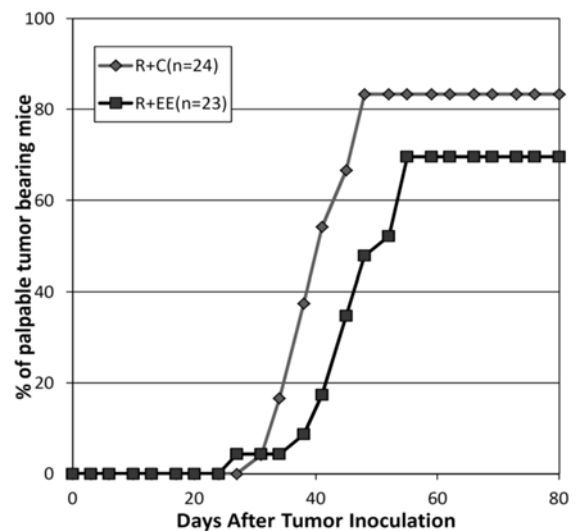


Fig. 2 Comparison of tumor transplantability. Mice were inoculated with OV3121 cells after an 8-week exposure to enriched (EE) or control (C) environment and irradiation with acute high dose-rate of 3 Gy γ -rays. Mice with palpable tumors were counted to assess transplanted tumor formation.

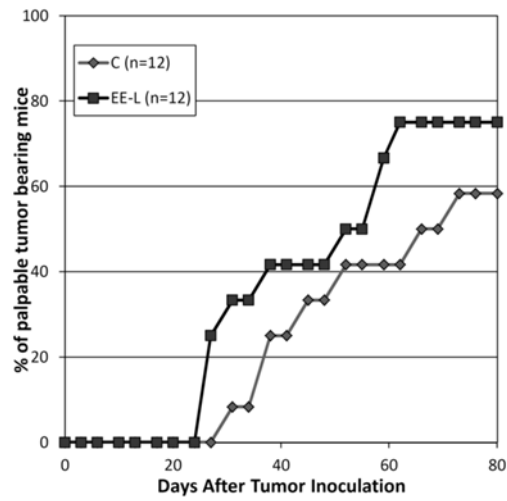


Fig. 3 Comparison of tumor transplantability. Mice were inoculated with OV3121 cells, and then exposed to enriched (EE-L, using large cage) or control (C, using normal cage) environment. Mice with palpable tumors were counted to assess transplanted tumor formation.