

# Factors Modifying the Effects of Low Dose-Rate Irradiation

Daisaku TAKAI

*Department of Radiobiology*

## Abstract

The purpose of this study was to identify factors that could "modify" the effects of long-term low dose-rate radiation exposure and their mechanisms that could ultimately reduce the risk(s) of health effects of radiation. For modifiers, we focused on environmental factors since long-term low dose-rate irradiation is considered a form of chronic stress. In 2021, we used changes in immune cell compositions, determined by flow cytometry, as a parameter to understand the mechanism by which the enriched environment(s) (EE) modify the effects of radiation, particularly regarding antitumor immunity.

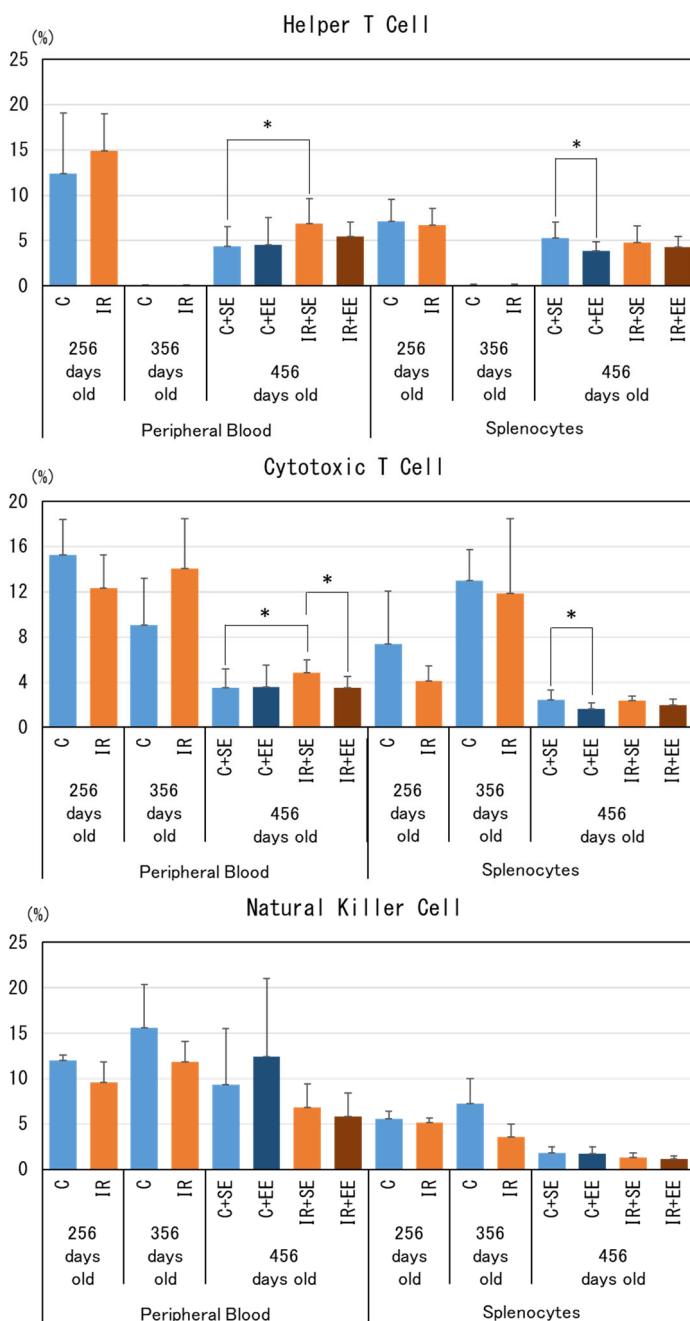


Fig.1 Helper T cells (top), cytotoxic T cells (center), and natural killer cells (bottom) expressed as a percentage (%) of the total white blood cell count. (C) non-irradiated control; (IR) irradiated mice; (SE) standard environment; and (EE) enriched environment. Error bars represent standard deviation. \*,  $p < 0.05$  ( $t$ -test).