Preliminary Experiment to Examine the Correlation between Hematopoietic Stem Cell Changes and Life Span

Takanori YANAI, Jun-ichiro KOMURA, Satoshi TANAKA
Department of Radiobiology

Abstract

With the objective of clarifying whether the decrease in the number of hematopoietic stem cells (HSCs) after continuous radiation exposure is due to a direct effect (on HSCs) or indirectly via changes in the microenvironment in the bone marrow, we have planned to transplant irradiated HSCs and investigate their self-renewal capacity, differentiation ability and possible contribution to mouse life span.

Preliminary experiments showed that the optimal number of HSCs for successful transplantation is 1×10^5 cells/mouse. Experiments are underway to determine the effects on life span of transplantation of HSCs from wild type (+/+) mice irradiated at 20 mGy/day for 400 days to non-irradiated mast cell-deficient WBB6F1-*W/W*^{v} mice.

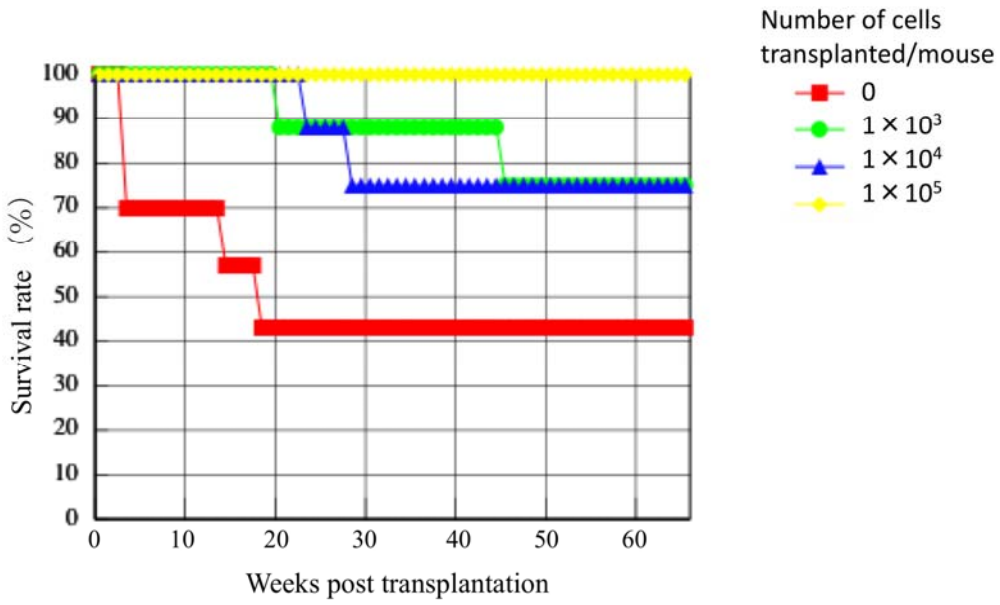

Fig. 1 Post-transplantation survival rates of WBB6F1-*W/W*^{v} mice transplanted with hematopoietic stem cells from wild type (+/+) mice.