

## *Supplementary Material*

**Supplementary Figure 1.** Kaplan-Meier 30-day survival curves illustrating the prolonged survival of CD2F1 mice prophylactically treated by IV injection with 10 mg/kg RRx-001 compared to the vehicle control, 24 hours prior to 9.35 Gy whole body irradiation; log-rank  $\chi^2_{(1)} = 5.62$ ,  $p = .018$ . N = 12 mice/group (24 mice total).

**Supplementary Figure 2.** An increase in number of colonies, thus an increase in hematopoietic progenitor clonogenicity, of mouse bone marrow cells was observed in the sublethally irradiated groups prophylactically treated with 10 mg/kg RRx-001 compared to the vehicle control on and after day 21. The bone marrow was pooled for each group ( $n = 3$ /group/timepoint) and plated in triplicate. All colonies (one colony = 50+ cells) were counted 12 days after incubation. The sham-irradiated RRx-001- and vehicle-pretreated groups show all time points combined and graphed as mean  $\pm$  SEM;  $n = 12$  mice for the vehicle group (sample for day 21 was lost) and  $n = 15$  mice for the RRx-001 group. Irradiated RRx-001- and vehicle-pretreated groups are shown as the mean  $\pm$  SEM of  $n = 3$  mice/group/time point. Bone marrow collected from 57 mice was used in the experiment.

**Supplementary Figure 3.** G-CSF levels in the serum of sublethally irradiated mice prophylactically treated with 10 mg/kg RRx-001 did not increase to the levels seen in the vehicle control group on day's 7 and 14. Sham-irradiated RRx-001- and vehicle-pretreated groups show all time points combined and graphed as mean  $\pm$  SEM. Irradiated RRx-001- and vehicle-pretreated groups are shown as the mean  $\pm$  SEM of  $n = 2 - 3$  mice/group/time point. Serum from 50 mice was used for the experiment.