

Figure S1 Irradiation with concurrent anti-PD-1 antibody exerted no influence on murine hearts. Representative images of HE-stained heart tissues from different groups on days 7 and 14 after the first exposure to irradiation. Original magnification, 100×; inset magnification, 400×. D, day; HE, hematoxylin and eosin; Iso, IgG isotype; PD-1, programmed death 1; IR, irradiation

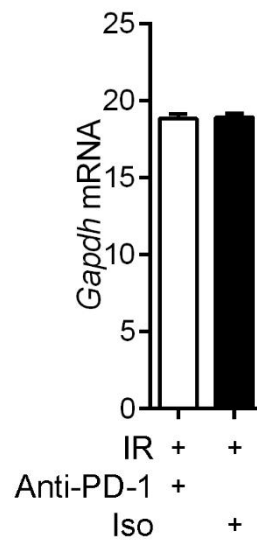


Figure S2 Expression levels of GAPDH were unchanged in the lung tissues of mice. qRT-PCR analysis of Gapdh in the lung tissues on day 7 post-irradiation. Empty bars indicate the mice received rat anti-PD-1 antibody. Filled bars indicate the mice received same amount of Isotype (n =12 in IR + Anti-PD-1 group, n = 6 in IR + Iso group).

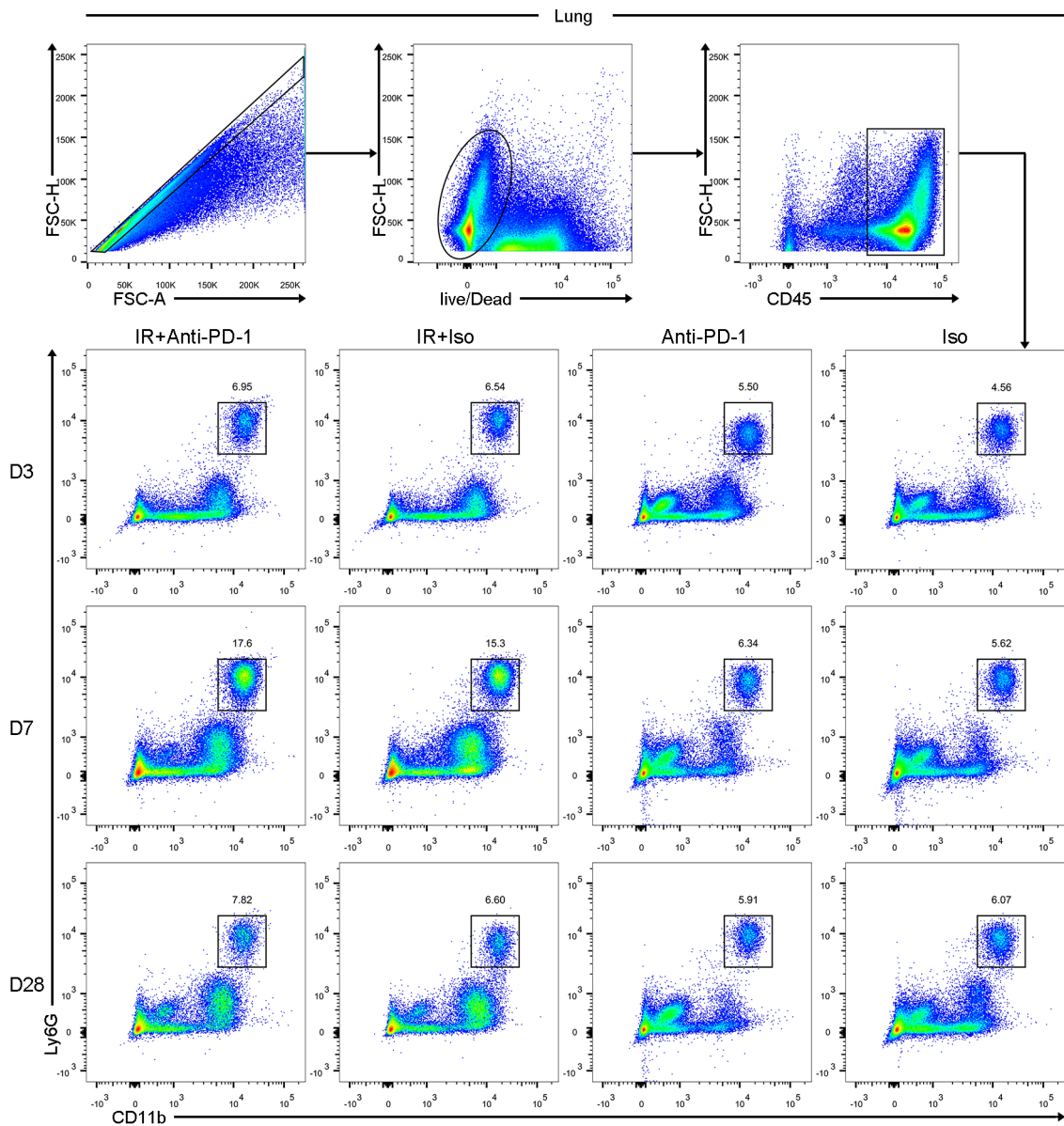


Figure S3 Concurrent administration of anti-PD-1 antibody significantly upregulated the numbers of lung neutrophils in mice with radiation-induced lung injury (RILI). Living cells were gated to determine the presence of CD45⁺ Ly6G⁺ CD11b⁺ neutrophils in the lung tissues on days 3, 7, and 28 post-irradiation. The numbers were the percentage of neutrophils cells among total CD45⁺ leukocyte cells.

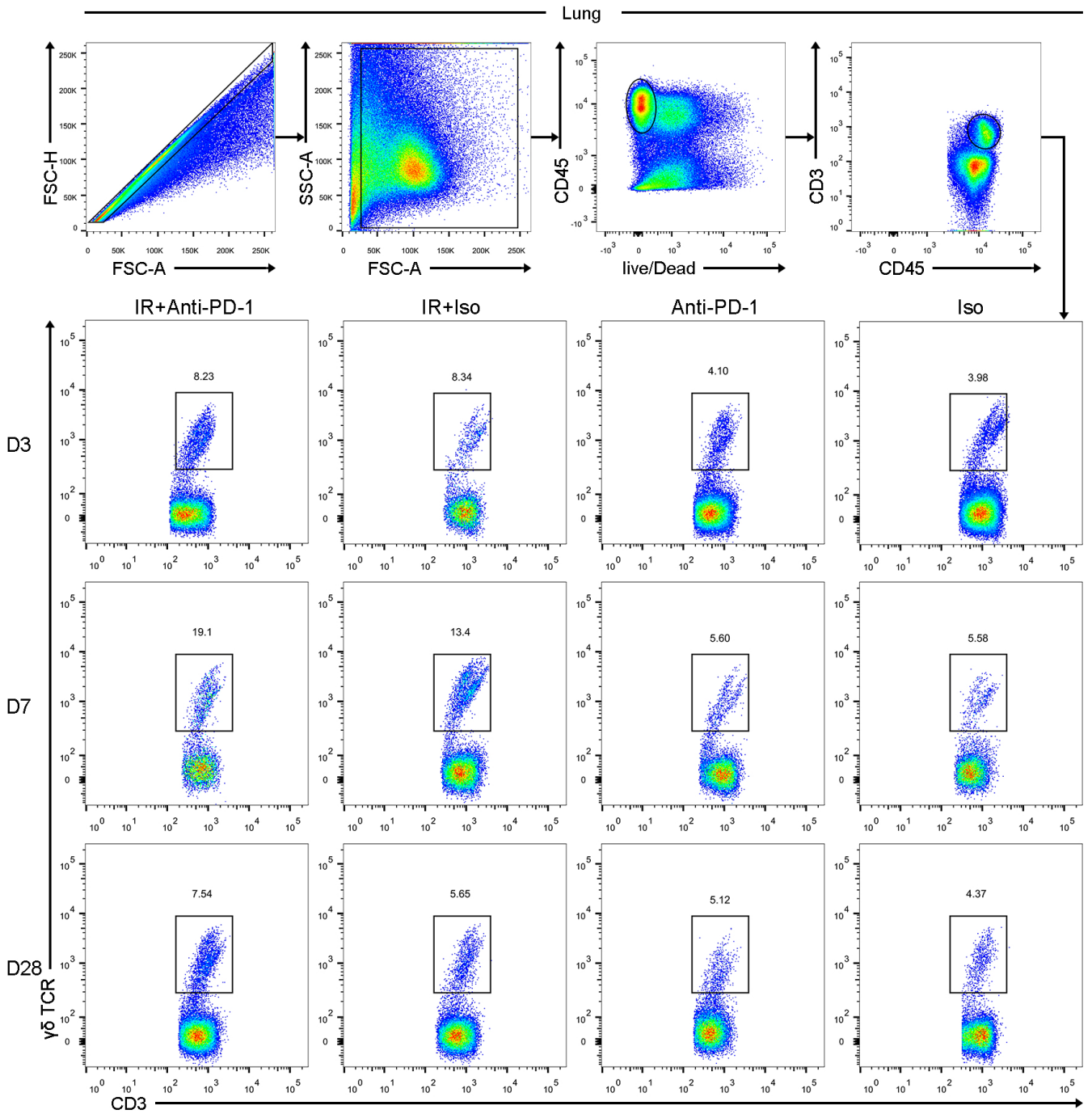


Figure S4 Concurrent administration of anti-PD-1 antibody resulted in a significant increase in $\gamma\delta$ T cells in the lung tissues of mice with RILI. Identification of $CD45^+ CD3^+ \gamma\delta TCR^+$ T cells in the lung tissues on Days 3, 7, and 28 post-irradiation. The numbers were the percentage of $\gamma\delta$ T cells among total $CD3^+$ T cells.

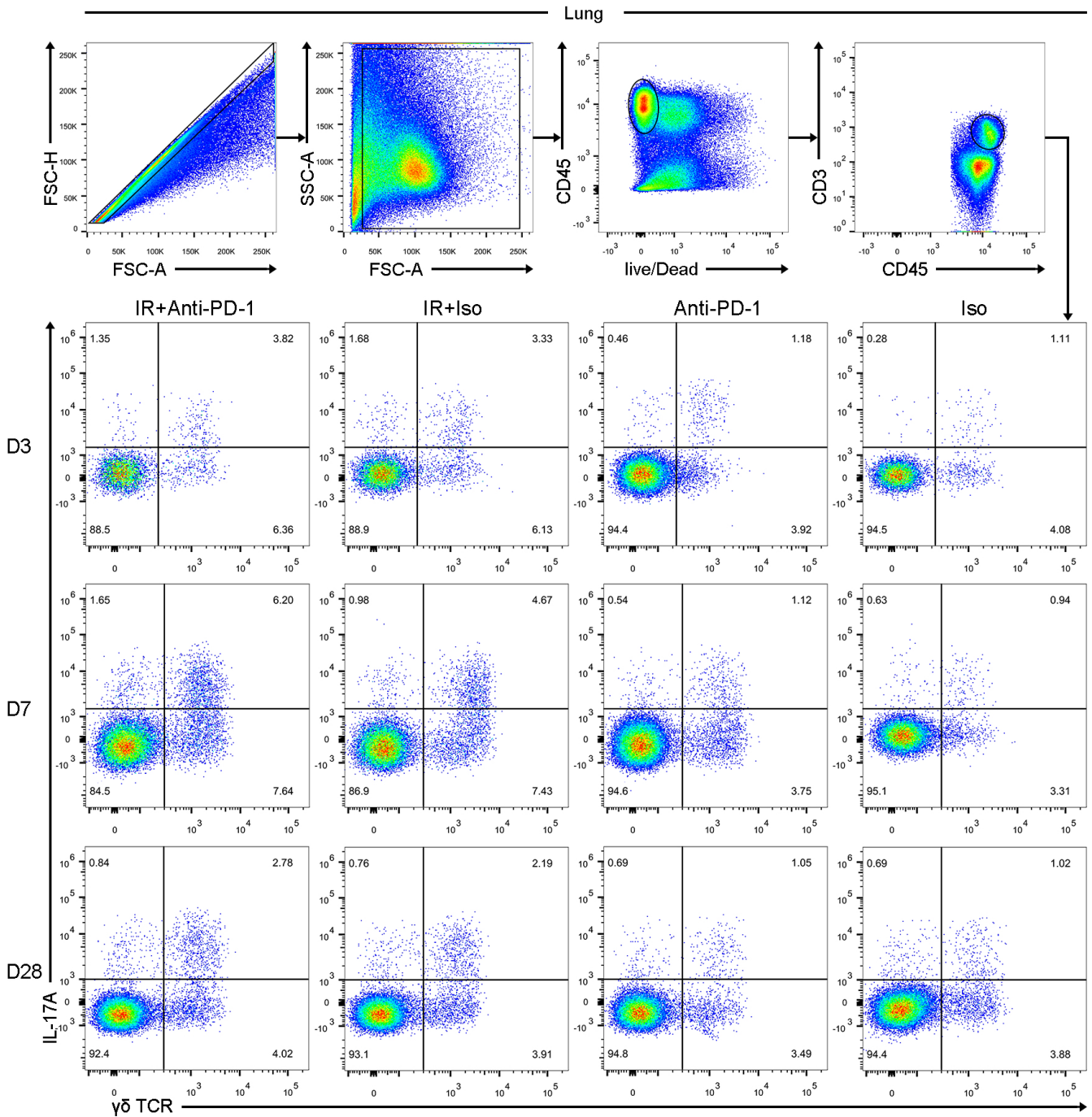


Figure S5 The numbers of IL-17A-producing $\gamma\delta$ T cells were elevated in the irradiated lungs with concurrent anti-PD-1 immunotherapy. Flow cytometry plots of lung CD45⁺ CD3⁺ $\gamma\delta$ TCR⁺ IL-17A⁺ T cells on Days 3, 7, and 28 post-irradiation. The numbers were the percentage of IL-17A-producing $\gamma\delta$ T cells among total CD3⁺ T cells.

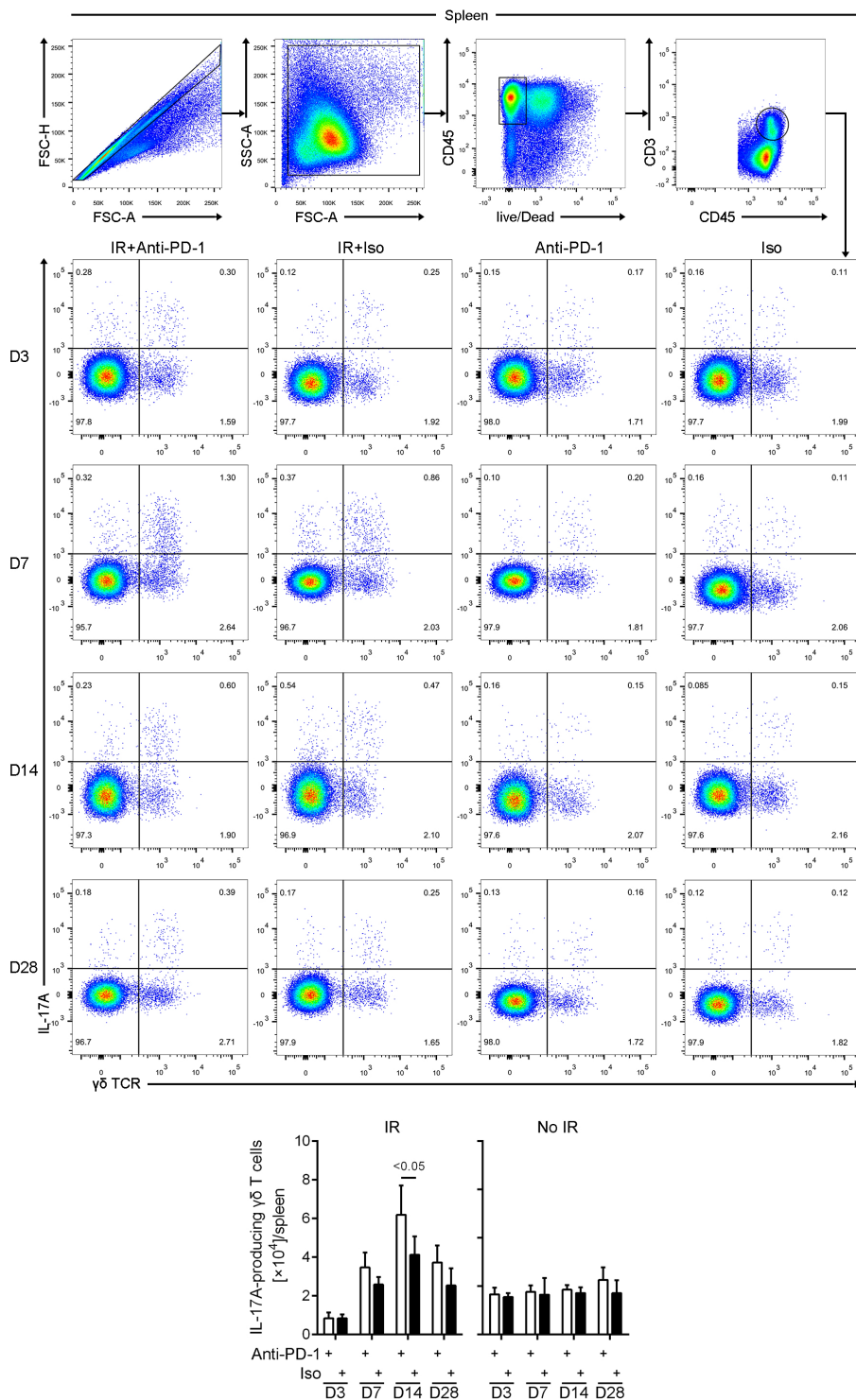


Figure S6 Concurrent administration of anti-PD-1 antibody significantly increased the numbers of splenic IL-17A-producing $\gamma\delta$ T cells in RILI CD45⁺ CD3⁺ $\gamma\delta$ TCR⁺ IL-17A⁺ T cells were progressively gated (upper panel) and counted (lower panel) in the spleen on Days 3, 7, 14 and 28 post-irradiation. Empty bars indicate the mice received rat anti-PD-1 antibody. Filled bars indicate the mice received same amount of Isotype. The numbers were the percentage of IL-17A-producing $\gamma\delta$ T cells among total CD3⁺ T cells (n = 5).

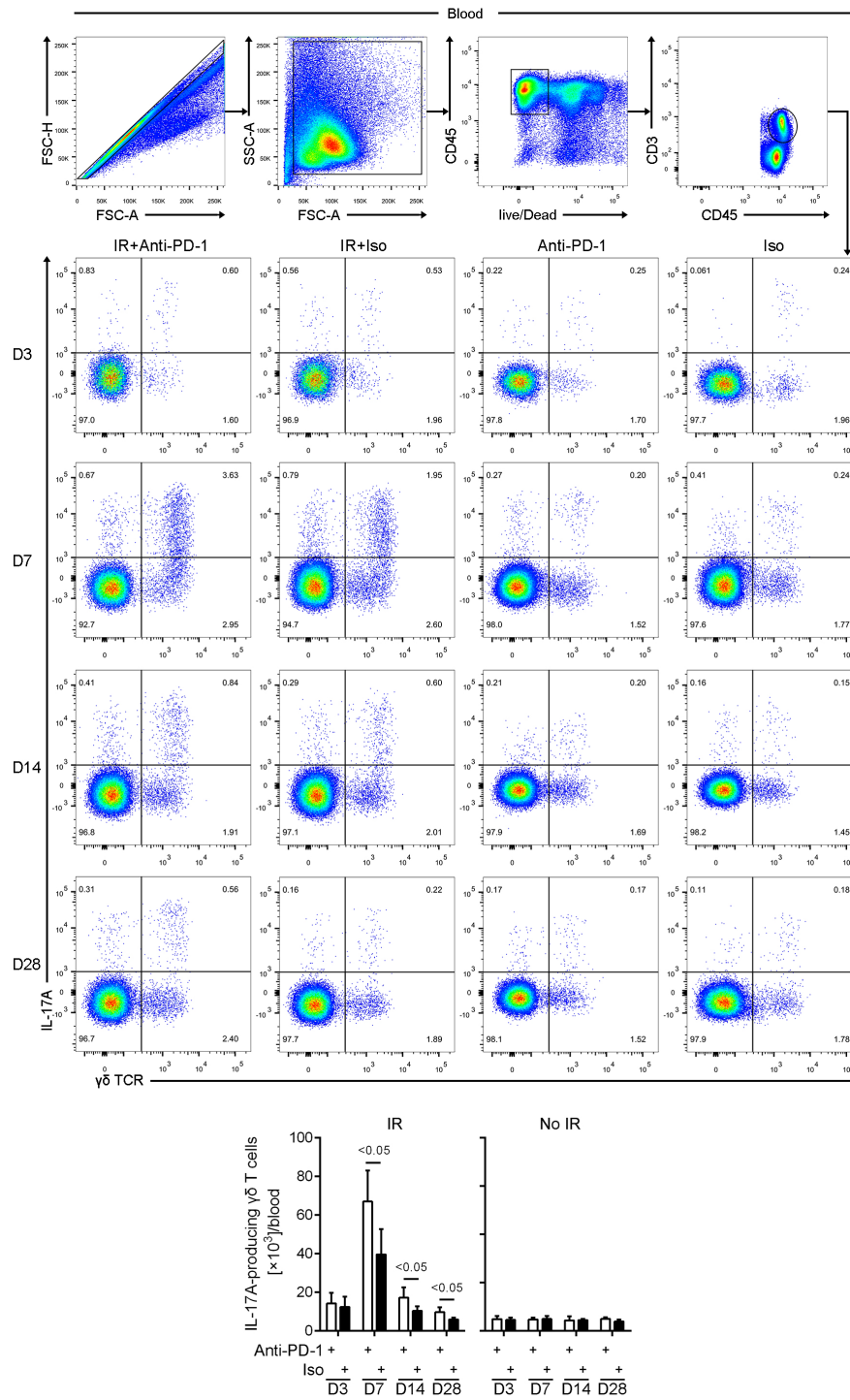


Figure S7 Concurrent administration of anti-PD-1 antibody significantly increased IL-17A-producing $\gamma\delta$ T cell counts in the peripheral blood of RLI Flow cytometry gating strategies for $CD45^+ CD3^+ \gamma\delta TCR^+ IL-17A^+$ T cells in the peripheral blood on Days 3, 7, 14 and 28 post-irradiation. Empty bars indicate the mice received rat anti-PD-1 antibody. Filled bars indicate the mice received same amount of Isotype. The numbers represented the percentage of IL-17A-producing $\gamma\delta$ T cells among total $CD3^+$ T cells. Quantified data was shown in the lower portion of the panel (n = 5).