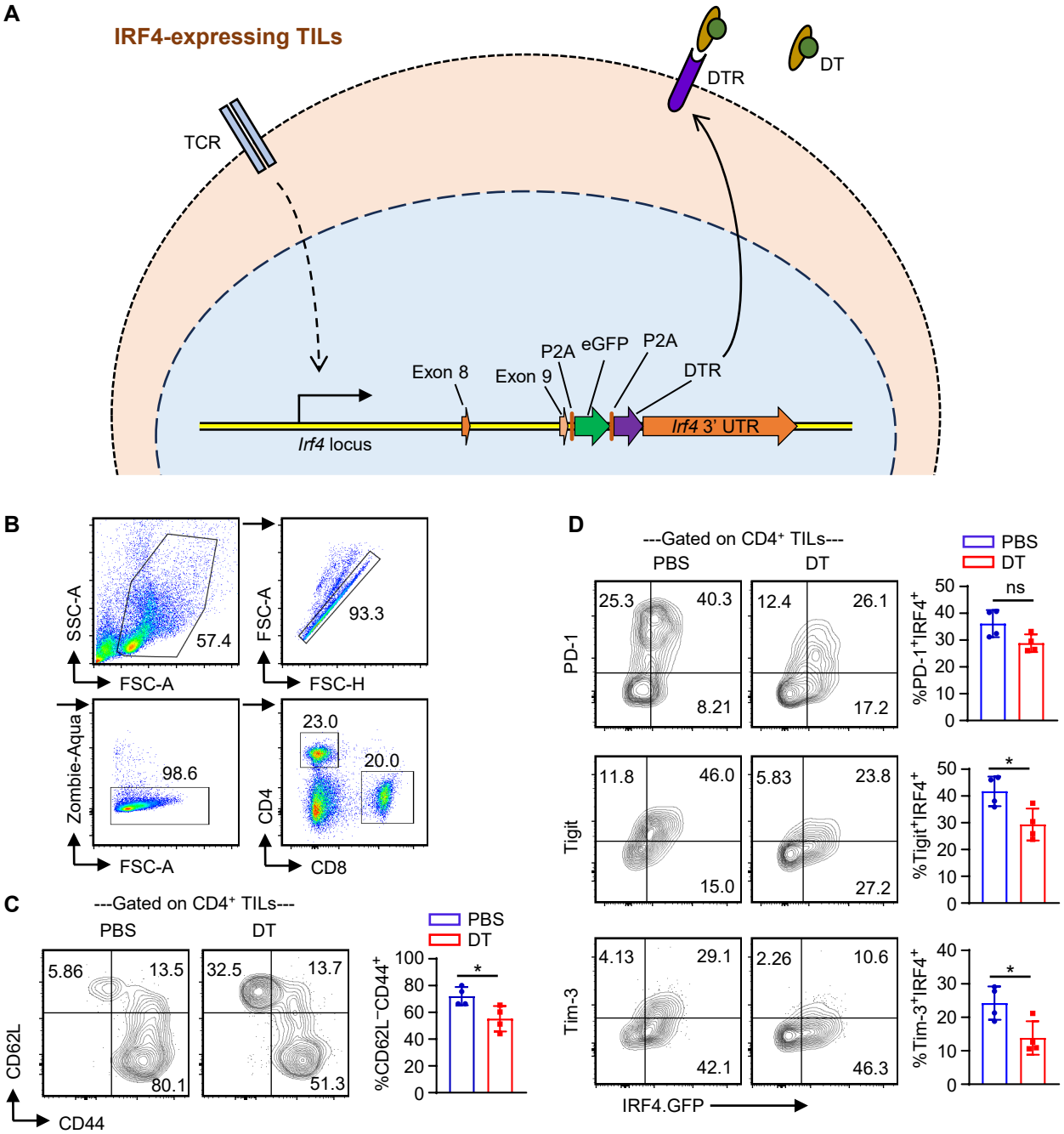


**Figure S1. Flow cytometric analysis of CD4⁺ TILs in melanoma, related to Figure 2.** (**A**) Diagram illustrating how DT treatment potentially depletes TILs expressing IRF4. For the *Irf4*$^{GFP\text{-}DTR}$ mice, a P2A.eGFP_P2A.DTR_stop cassette was inserted immediately after the last exon of WT B6 mouse *Irf4*. In TILs expressing IRF4, the endogenous *Irf4* expression is associated with DTR expression, rendering these cells susceptible to depletion upon DT administration. (**B–D**) *Irf4*$^{GFP\text{-}DTR}$ mice were subcutaneously injected with 0.1 x $10^6$ B16F10 melanoma cells and received treatments of 25 μg/kg DT or PBS on days 10, 12 and 14 post tumor implantation. TILs were obtained on day 22 for flow cytometry analysis. (**B**) Gating strategies applied during the analysis. (**C**) Percentage of CD62L⁻CD44⁺ T cells among CD4⁺ TILs. (**D**) Percentages of PD-1⁺IRF4⁺, Tigit⁺IRF4⁺, and Tim-3⁺IRF4⁺ cells among CD4⁺ TILs. The data in bar graphs are presented as mean ± SD (n = 4), and statistical significance was determined using an unpaired two-tailed Student's *t* test. ns $P > 0.05$, *$P < 0.05$.

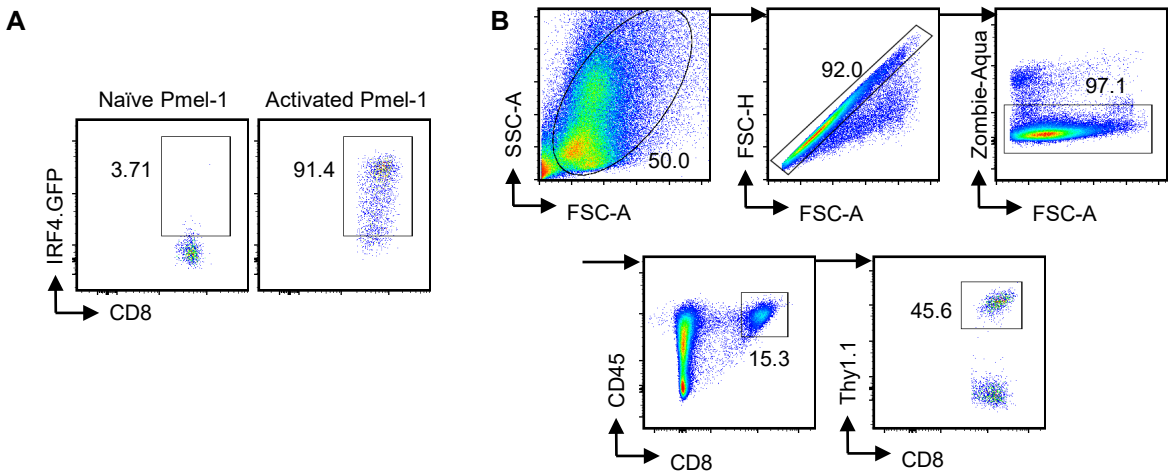


**Figure S2. Flow cytometry analysis of Pmel-1 CD8⁺ T cells, related to Figure 3.**
(**A**) Expression of IRF4.GFP in naïve Pmel-1 cells and *in vitro* activated Pmel-1 cells. (**B**) Gating strategies used to detect the adoptively transferred Pmel-1 cells in the B16F10 melanoma.

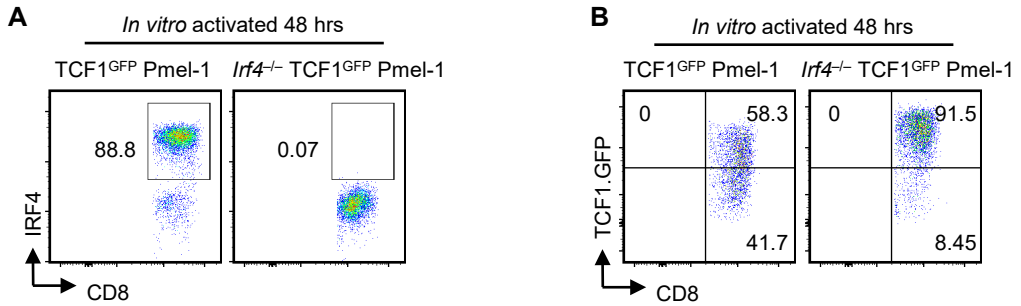


**Figure S3. *Irf4*-deficient Pmel-1 cells maintain TCF1 expression following *in vitro* activation, related to Figure 5.** Splenocytes from TCF1$^{GFP}$ Pmel-1 or *Irf4*$^{-/-}$ TCF1$^{GFP}$ Pmel-1 mice were *in vitro* stimulated with hgp100$_{25\text{-}33}$ for 48 hrs. (**A**) Representative flow cytometry plots showing the percentage of IRF4$^{+}$ cells among indicated Pmel-1 cell populations. (**B**) Representative flow cytometry plots showing the percentage of TCF1.GFP$^{+}$ cells among indicated Pmel-1 cell populations.