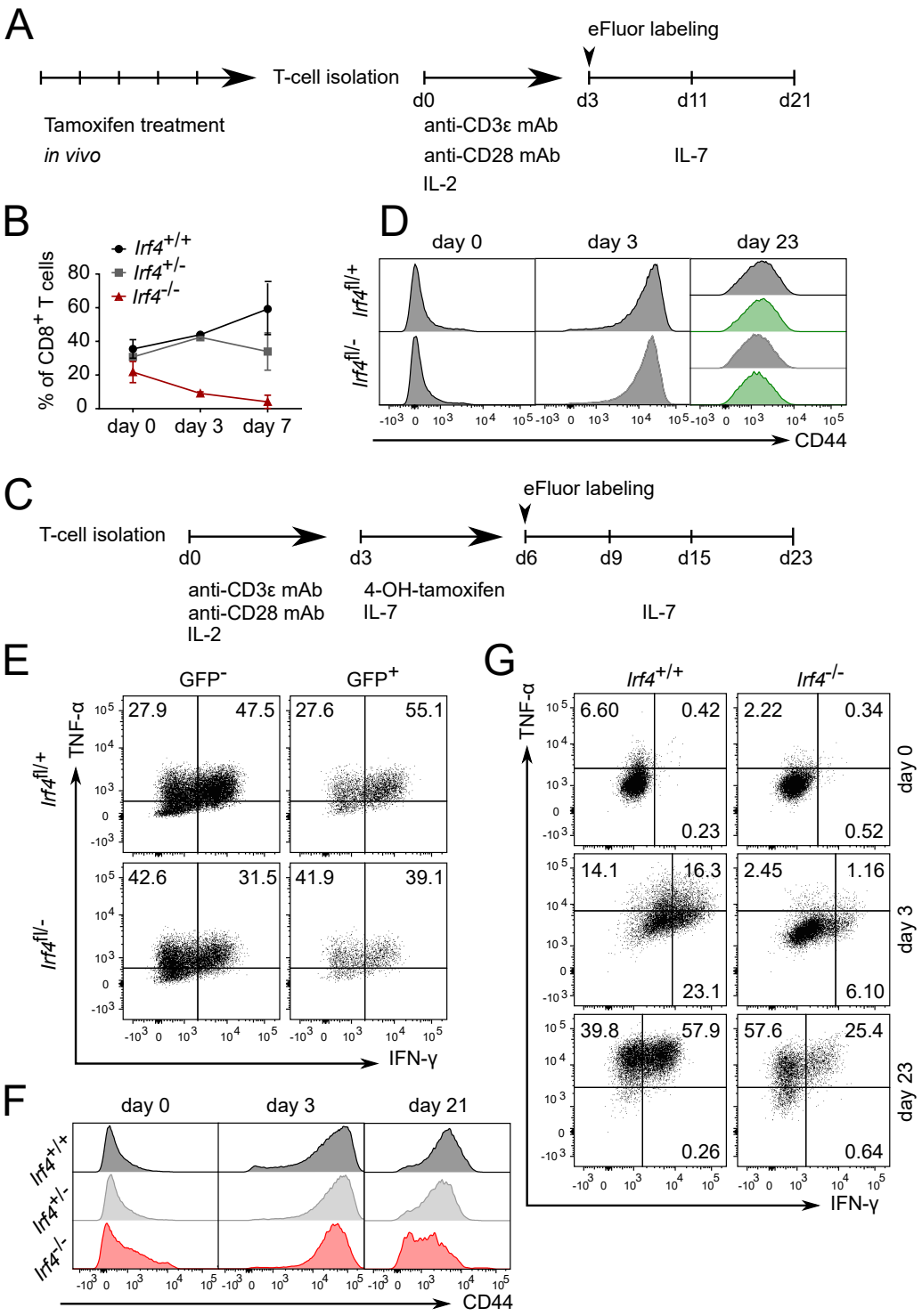
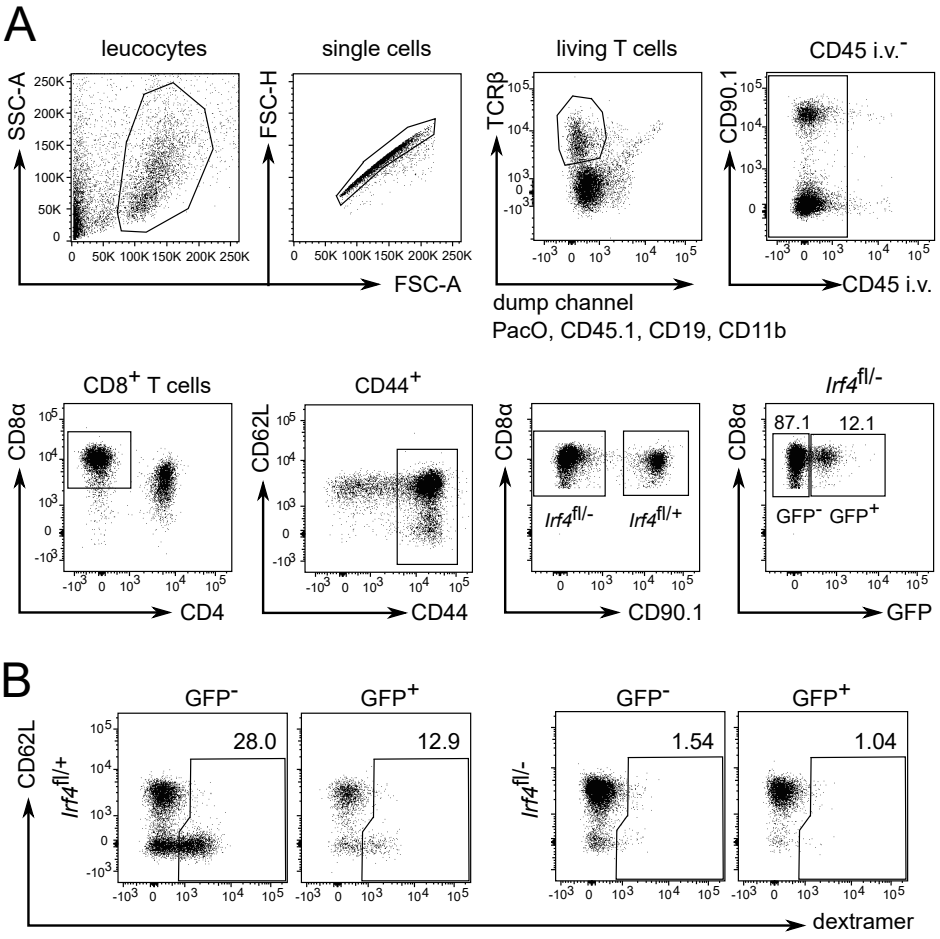


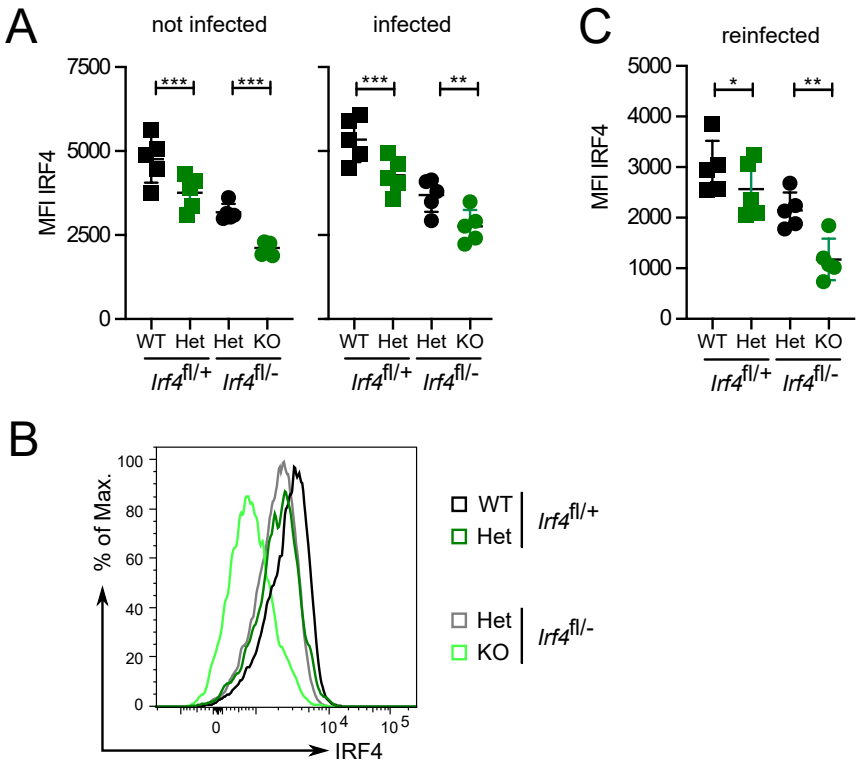
Suppl. Figure 1. *In vitro* response of IRF4-deficient CD8⁺ T cells.

A) Schematic outline for experiments in Figures 1F and G. B) Spleen cells from *Irf4*$^{+/+}$, *Irf4*$^{+/-}$ and *Irf4*$^{-/-}$ mice were mixed at 1:1:1 ratio, stimulated with anti-CD3 mAb, anti-CD28 mAb and IL-2. After 3 days, cells were washed and cultured for further 4 days with IL-7. Percentage of *Irf4*$^{+/+}$, *Irf4*$^{+/-}$ and *Irf4*$^{-/-}$ of CD8^{+} T cells. Combined results of 2 experiments with pooled cells from 2 mice per genotype, mean +/- SEM. C) Schematic outline for experiments in Figures 1H and I. D, E) CD8^{+} T cells from *Irf4*$^{fl/+}$×CreER^{T2} and *Irf4*$^{fl/-}$×CreER^{T2} mice were treated as described in (C). D) CD44 was measured by antibody staining and FACS on days 0, 3 and 23. E) At day 23, IFN-γ and TNF-α were determined by intracellular cytokine staining after stimulation with PMA/ionomycin for 4h. D, E) Representative result of 2 independent experiments with pooled cells from 4 mice per genotype. F, G) CD8^{+} T cells were purified from *Irf4*$^{+/+}$, *Irf4*$^{+/-}$ and *Irf4*$^{-/-}$ mice. Cells were activated with anti CD3 mAb, anti-CD28 mAb and IL-2 for 3 days, and then incubated with IL-7 for 3 weeks. F) On indicated days, CD44 expression was determined. G) IFN-γ and TNF-α were determined after stimulation with PMA/ionomycin for 4h. F, G) Representative result of 3 independent experiments with pooled cells from 4 mice per genotype.



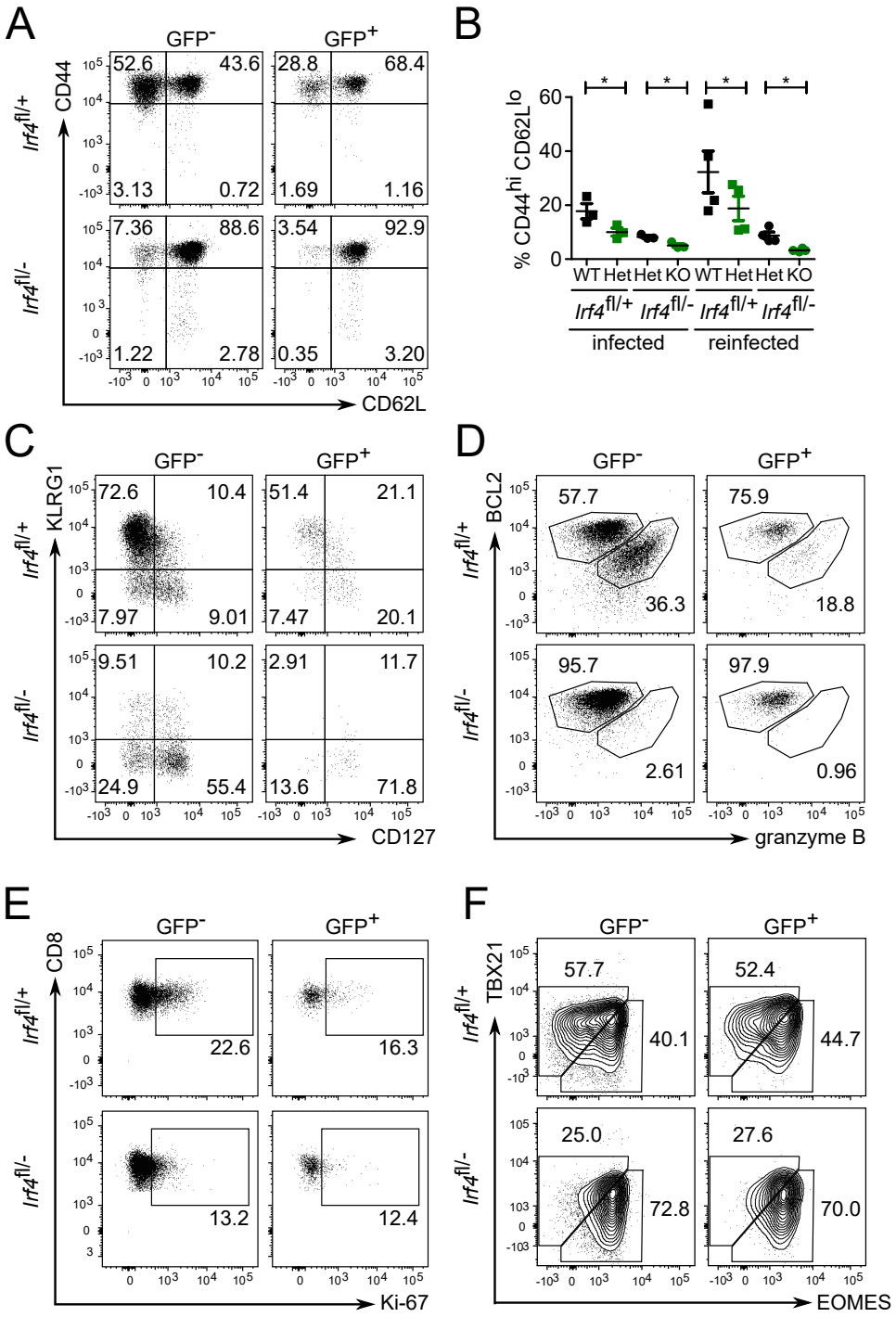
Suppl. Figure 2. Gating strategies.

A) Gating strategy for the identification and characterization of CD45.2$^+$ CD8$^+$ T cells from *Irf4*$^{fl/+}$ ×CreER^{T2} and *Irf4*$^{fl/-}$×CreER^{T2} donors in CD45.1$^+$ *Rag1*$^{-/-}$ recipients. Single leucocytes were defined by their FSC/SSC profile and TCRβ$^+$ T cells were selected. In some experiments, mice were i.v. injected with fluorochrome-labelled anti-CD45 mAb 3 minutes before killing. Parenchymatic cells were identified by the absence of anti-CD45 staining (CD45i.v.$^-$). CD90.1$^+$ *Irf4*$^{fl/+}$×CreER^{T2} CD8$^+$ T cells were distinguished from CD90.1$^-$ *Irf4*$^{fl/-}$×CreER^{T2} CD8$^+$ T cells. B) Representative dot plots for dextramer staining of CD8-gated cells in Figure 5A.

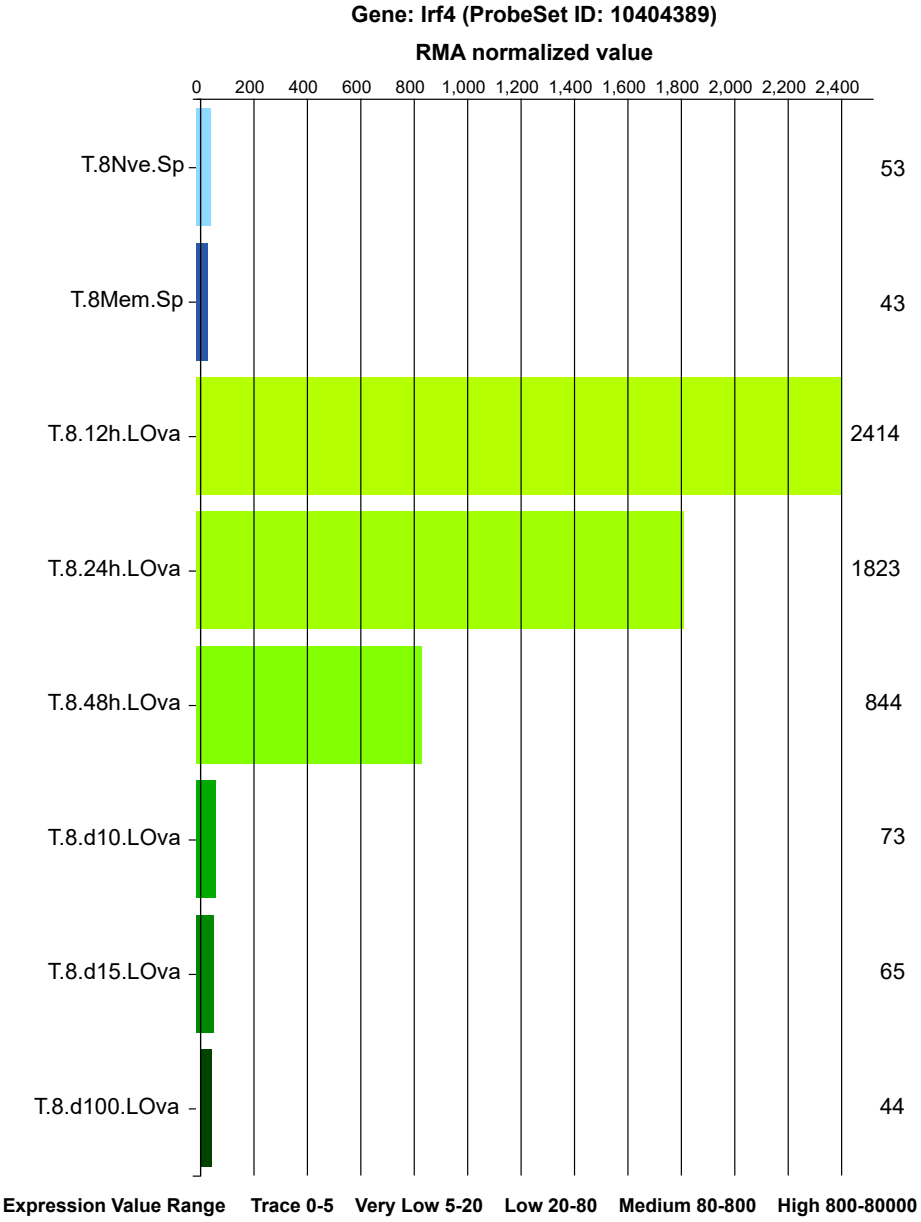


Suppl. Figure 3. IRF4 Expression *in vivo* after tamoxifen treatment.

A) *Rag1*$^{-/-}$ mice were reconstituted with T cells from naïve *Irf4*$^{fl/+}$×CreER^{T2} and *Irf4*$^{fl/-}$×CreER^{T2} mice. Recipient mice were infected with LmOVA. Five weeks later, mice were treated with tamoxifen for 5 days. 24 days after tamoxifen treatment, CD8^{+} T cells were analyzed (see Figure 2C). Mean fluorescence intensity (MFI) of IRF4 was determined by FACS after stimulation with PMA/ionomycin for 4h. B, C) *Rag1*$^{-/-}$ mice were reconstituted with T cells from naïve *Irf4*$^{fl/+}$×CreER^{T2} and *Irf4*$^{fl/-}$×CreER^{T2} mice. Recipient mice were infected with LmOVA. Five weeks later, mice were treated with tamoxifen for 5 days. Two weeks after tamoxifen treatment, mice were reinfected with LmOVA. Five days later, CD8^{+} T cells were analyzed (see Figure 4A). Cells were stimulated for 4h with PMA/ionomycin and IRF4 expression was analyzed by FACS. B) representative results for IRF4 staining. C) MFI of IRF4. Representative results of 3 experiments with 5 - 8 mice in infected groups and 4 - 5 mice in not infected groups (A), and of 3 experiments with 4 - 6 mice in (B) and (C). Mean +/- SEM, paired t test.



Suppl. Figure 4. Frequencies of CD8$^+$ effector T cells and representative staining profiles. *Rag1*$^{-/-}$ mice were reconstituted and treated as described in Figure 4A. Representative dot plots for CD62L and CD44 (A), for KLRG1 and CD127 (C), for granzyme B and BCL2 (D), for Ki-67 (E) and for EOMES and TBX21 (F) of GFP$^+$ and GFP$^-$ *Irf4*$^{fl/+}$×CreER^{T2} and *Irf4*$^{fl/-}$×CreER^{T2} CD8$^+$ T cells of reinfected mice. B) %-values of CD44^{hi}CD62L^{lo} CD8$^+$ T cells of reinfected mice and mice without reinfection (infected). Mean +/- SEM, paired t test. A-F) Representative results of 3 independent experiments with 4 - 6 mice in reinfected groups and 2 - 4 mice in infected groups.



Suppl. Figure 5. Expression of *Irf4* mRNA in different CD8$^+$ T-cell subsets.
Expression of *Irf4* in different CD8$^+$ T-cell populations quantified by micro array analysis. Data are derived from the ImmGen consortium database (Heng TS, et al., Immunological Genome Project Consortium. Nat Immunol. 2008 10: 1091.). From top to bottom: Naïve CD8$^+$ T cells (CD62L^{hi} CD44^{lo}), CD8$^+$ memory T cells (CD44^{hi} CD122^{hi}), transferred OT1 CD8$^+$ T cells 12h, 24h, 48h, 10 days, 15 days and 100 days after LmOVA infection. All cell populations were sorted from spleens of naïve C57BL/6J mice or from CD45.1$^+$ C57BL/6J mice that had received ovalbumin-specific CD8$^+$ T cells from CD45.2$^+$ OT1 transgenic mice and were infected with LmOVA.