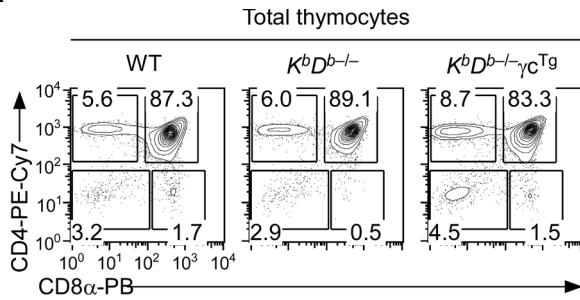
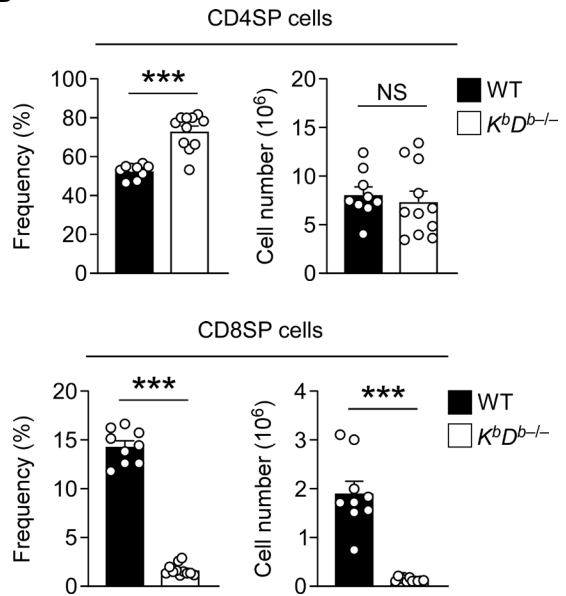


# Suppl. Figure 1

**A**



**B**

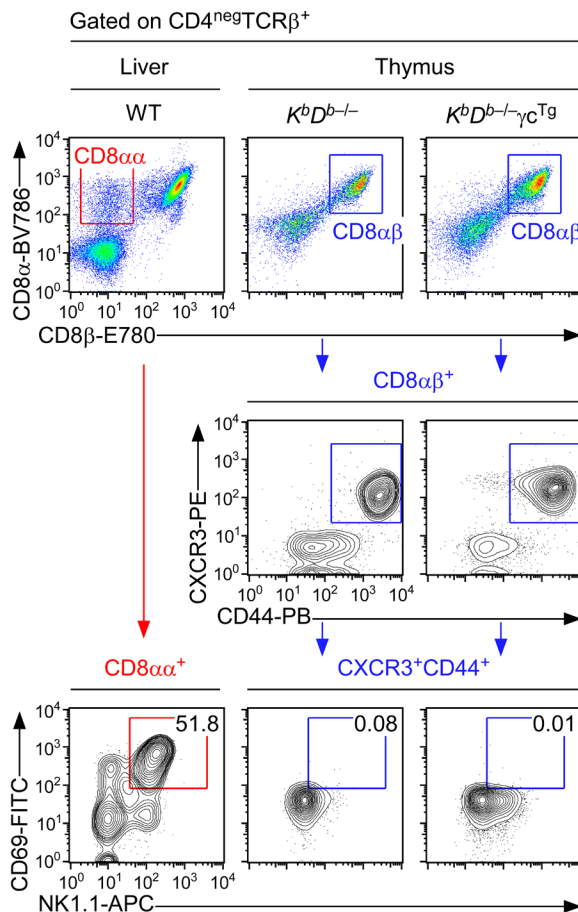


## Suppl. Fig. 1: T cell development in $K^bD^b^{-/-}$ and $K^bD^b^{-/-}\gamma cTg$ mice

**A.** CD4 versus CD8 profiles of total thymocytes of the indicated mouse strains. Results are representative of 6 independent experiments.

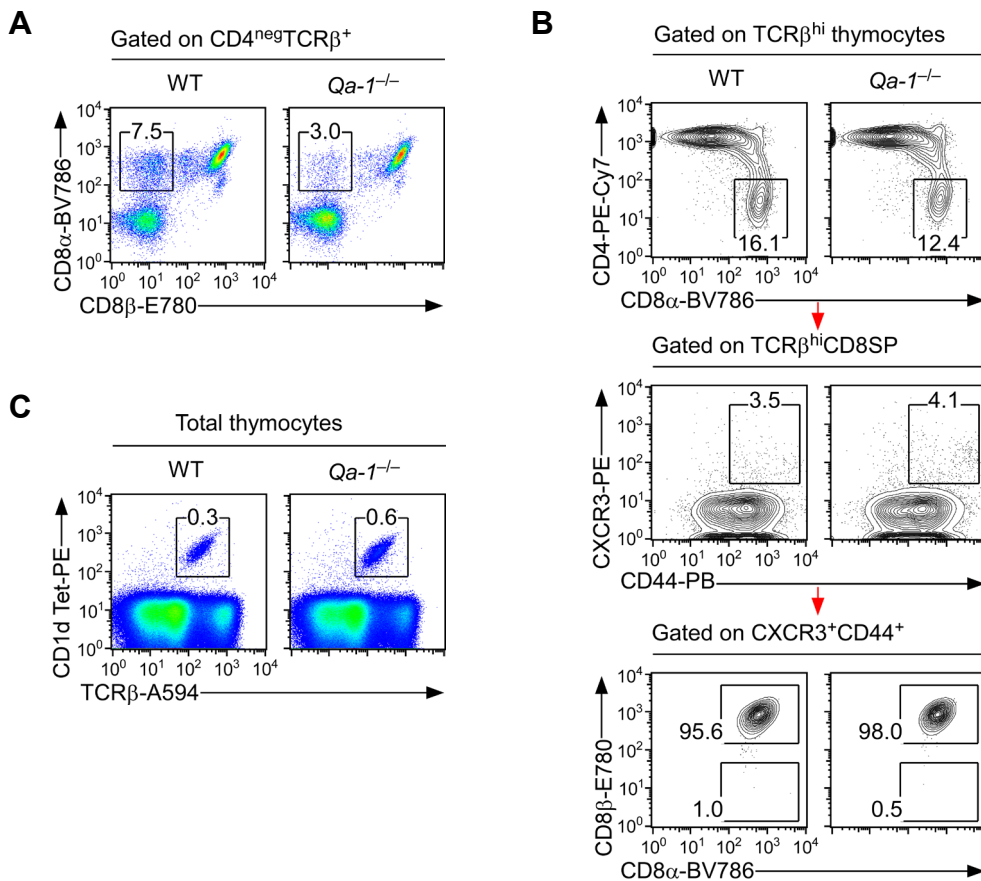
**B.** Frequencies (left) and cell numbers (right) of mature CD4SP and CD8SP thymocytes in WT and  $K^bD^b^{-/-}$  mice. Results are the summary of 6 independent experiments with a total of 9 WT and 11  $K^bD^b^{-/-}$  mice.

# Suppl. Figure 2



**Suppl. Fig. 2: Unconventional innate-like CD8 T cells and conventional innate CD8 T cells**  
Frequencies of CD69<sup>+</sup>NK1.1<sup>+</sup> innate-like CD8 T cells (bottom) was assessed in CD8α and CD8αβ T cells among CD4-negative TCRβ<sup>hi</sup> liver T cells (left) and CD4<sup>+</sup>CXCR3<sup>+</sup> CD8SP thymocytes (right) of the indicated mice (top). Results are representative of 2 independent experiments with a total of 4 WT, 3 *K<sup>b</sup>D<sup>b</sup>-/-*, and 4 *K<sup>b</sup>D<sup>b</sup>-/-*γC<sup>Tg</sup> mice.

## Suppl. Figure 3



### Suppl. Fig. 3: *i*NKT and innate-like T cells in *Qa-1*<sup>-/-</sup> mice

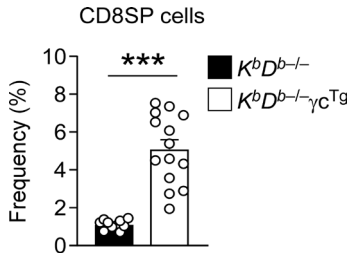
**A.** Frequencies of CD8 $\alpha$  innate-like CD8 T cells among CD4-negative TCR $\beta$ <sup>hi</sup> mononuclear lymphocytes in the liver of the indicated mice. Results are representative of 2 independent experiments with a total of 4 WT and 4 *Qa-1*<sup>-/-</sup> mice.

**B.** Frequencies of CXCR3<sup>+</sup>CD44<sup>+</sup> innate CD8 T cells (middle) were determined in TCR $\beta$ <sup>hi</sup> mature CD8SP thymocytes of the indicated mice (top), and then assessed for CD8 $\alpha$  versus CD8 $\alpha$  expression among innate CD8 T cells (bottom). Results are representative of 2 independent experiments with a total of 4 WT and 4 *Qa-1*<sup>-/-</sup> mice.

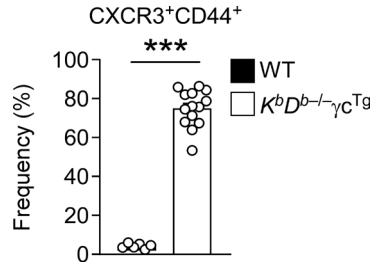
**C.** Frequencies of *i*NKT cells among total thymocytes of WT and *Qa-1*<sup>-/-</sup> mice. Results are representative of 2 independent experiments with a total of 4 WT and 4 *Qa-1*<sup>-/-</sup> mice.

# Suppl. Figure 4

**A**



**B**

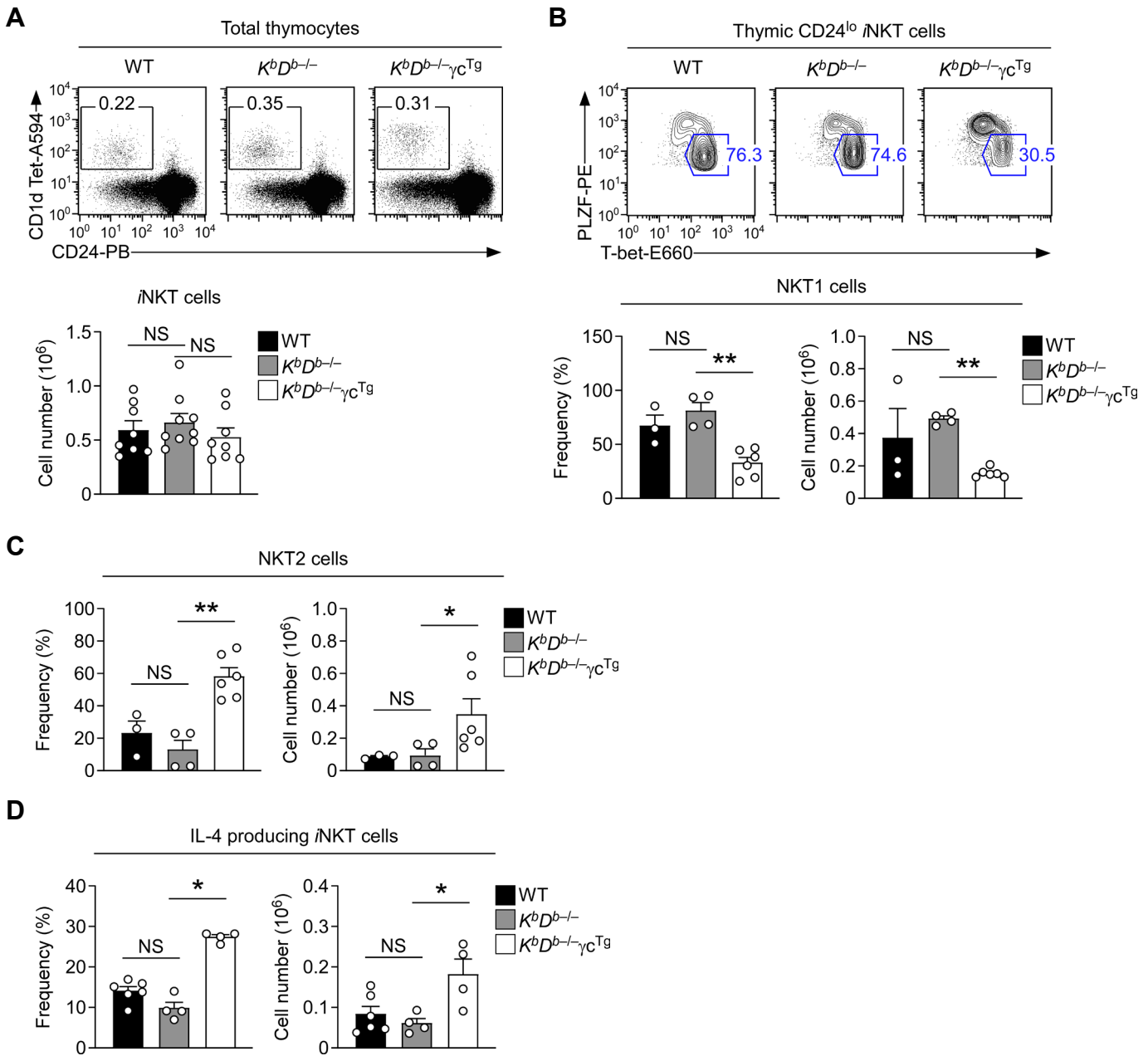


## Suppl. Fig. 4: Characterization of CD8SP thymocytes in $K^bD^{b-/-}\gamma C^{Tg}$ mice

**A.** Frequency of CD8SP thymocytes in  $K^bD^{b-/-}$  and  $K^bD^{b-/-}\gamma C^{Tg}$  mice. Results are the summary of 8 independent experiments.

**B.** Frequencies of CXCR3<sup>+</sup>CD44<sup>+</sup> CD8SP thymocytes in WT and  $K^bD^{b-/-}\gamma C^{Tg}$  mice. Results are the summary of 6 independent experiments with a total of 6 WT and 10  $K^bD^{b-/-}\gamma C^{Tg}$  mice.

# Suppl. Figure 5



## Suppl. Fig. 5: Thymic iNKT cell development in $K^bD^b^{-/-}\gamma c^{Tg}$ mice

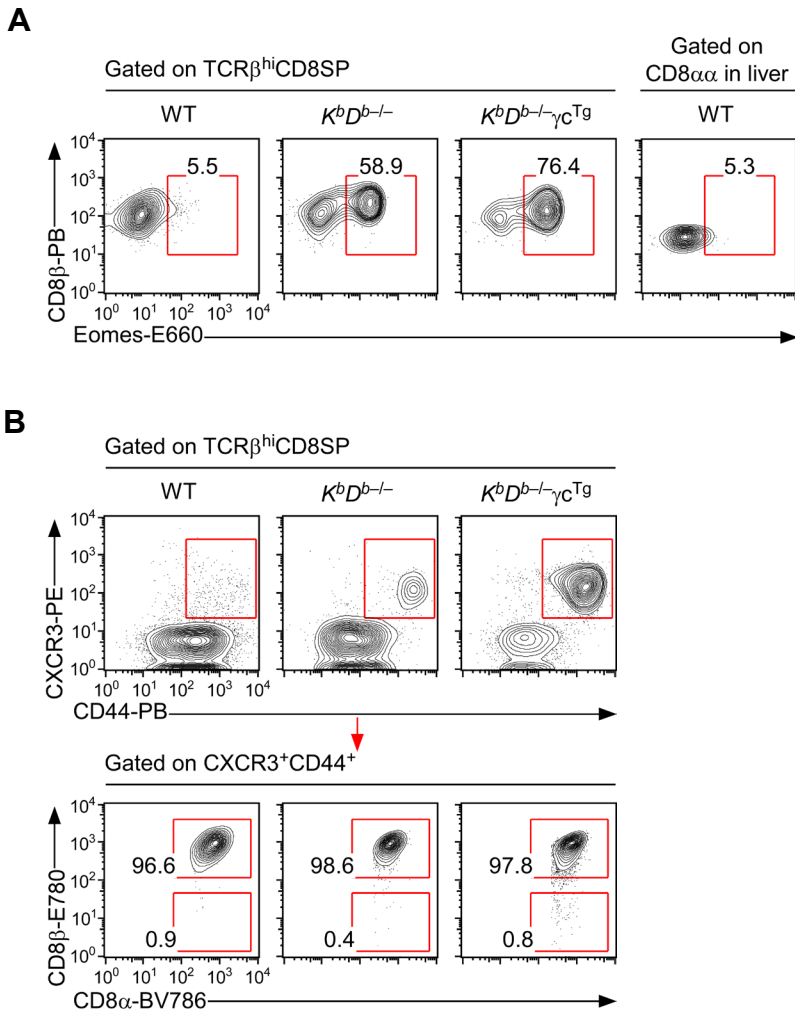
**A.** Frequencies (top) and cell numbers (bottom) of CD24<sup>lo</sup> mature iNKT cells among thymocytes of the indicated mouse strains. Results show the summary of 6 independent experiments with a total of 8 WT, 8  $K^bD^b^{-/-}$ , and 9  $K^bD^b^{-/-}\gamma c^{Tg}$  mice.

**B.** Frequencies and cell numbers of T-bet<sup>+</sup> NKT1 cells of the indicated mice. Results show the summary of 3 independent experiments with a total of 3 WT, 4  $K^bD^b^{-/-}$ , and 6  $K^bD^b^{-/-}\gamma c^{Tg}$  mice.

**C.** Frequencies of NKT2 cells of the indicated mice. Results show the summary of 3 independent experiments with a total of 3 WT, 4  $K^bD^b^{-/-}$ , and 6  $K^bD^b^{-/-}\gamma c^{Tg}$  mice.

**D.** Frequencies and cell numbers of IL-4-producing iNKT cells of the indicated mice. Results show the summary of 3 independent experiments with a total of 6 WT, 4  $K^bD^b^{-/-}$ , and 4  $K^bD^b^{-/-}\gamma c^{Tg}$  mice.

## Suppl. Figure 6



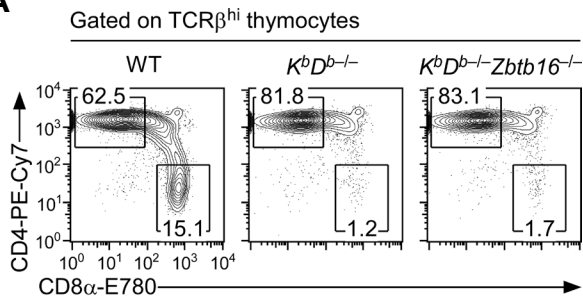
### Suppl. Fig. 6: Innate-like CD8 $\alpha\alpha$ T cells in $K^bD^b-/-\gamma\text{c}^{\text{Tg}}$ mice

**A.** Contour plots show the CD8 $\beta$  versus Eomes profiles of TCR $\beta^{\text{hi}}$  mature CD8SP T cells in WT,  $K^bD^b-/-$ , and  $K^bD^b-/-\gamma\text{c}^{\text{Tg}}$  mice and CD8 $\alpha\alpha$  T cells of liver mononuclear cells in WT mice. Results are representative of 2 independent experiments.

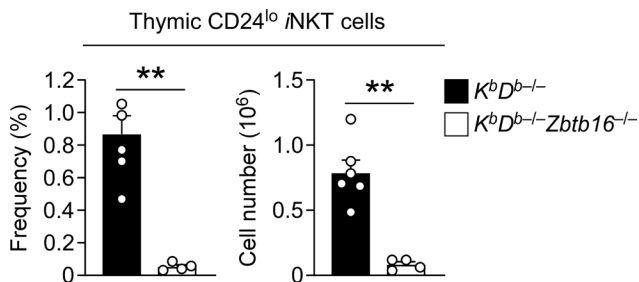
**B.** Frequencies of CXCR3 $^+$ CD44 $^+$  innate CD8 T cells (top) was determined in TCR $\beta^{\text{hi}}$  mature CD8SP thymocytes of the indicated mice, and then assessed for CD8 $\alpha\beta$  versus CD8 $\alpha\alpha$  T cells among innate CD8 T cells (bottom). Results are representative of 2 independent experiments with a total of 4 WT, 3  $K^bD^b-/-$ , and 4  $K^bD^b-/-\gamma\text{c}^{\text{Tg}}$  mice.

# Suppl. Figure 7

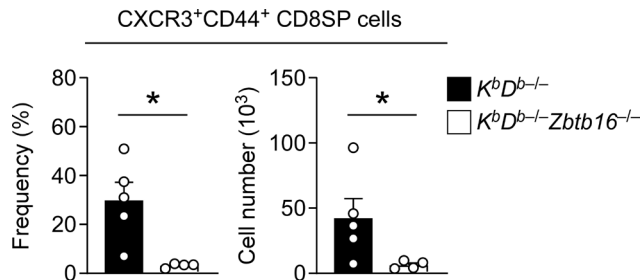
**A**



**B**



**C**



## Suppl. Fig. 7: Thymocyte development in $K^bD^{b-/-}Zbtb16^{-/-}$ mice

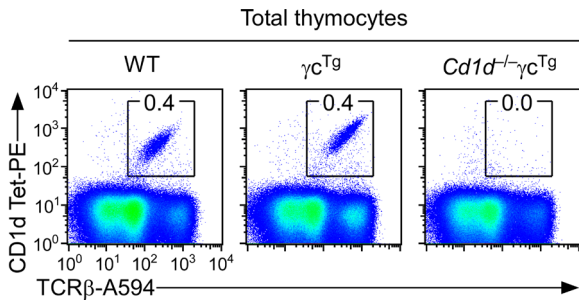
**A.** Contour plots show the CD4 versus CD8 profiles of TCR $\beta^{\text{hi}}$  mature thymocytes in WT,  $K^bD^{b-/-}$ , and  $K^bD^{b-/-}Zbtb16^{-/-}$  mice. Results show the summary of 3 independent experiments.

**B.** Frequency and number of mature  $\text{iNKT}$  cells that were identified as CD24 $^{\text{lo}}$ CD1dTet $^+$  cells in the thymus of  $K^bD^{b-/-}$  and  $K^bD^{b-/-}Zbtb16^{-/-}$  mice. Results show the summary of 3 independent experiments with a total of 5  $K^bD^{b-/-}$  and 4  $K^bD^{b-/-}Zbtb16^{-/-}$  mice.

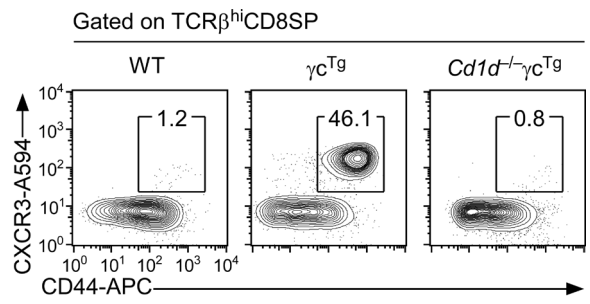
**C.** Frequency and number of thymic CXCR3 $^+$ CD44 $^+$  innate CD8 T cells from the indicated mice. Results show the summary of 3 independent experiments with a total of 5  $K^bD^{b-/-}$  and 4  $K^bD^{b-/-}Zbtb16^{-/-}$  mice.

# Suppl. Figure 8

**A**



**B**



## Suppl. Fig. 8: *i*NKT and innate CD8 T cells in $Cd1d^{-/-}\gamma c^{Tg}$ mice

**A.** Frequencies of *i*NKT cells among total thymocytes of the indicated mouse strains. Results are representative of 6 independent experiments with a total of 12 WT, 7  $\gamma c^{Tg}$ , and 16  $Cd1d^{-/-}\gamma c^{Tg}$  mice.

**B.** Frequencies of CXCR3<sup>+</sup>CD44<sup>+</sup> innate CD8 T cells among mature CD8SP thymocytes in the indicated mice. Results are representative of 6 independent experiments with a total of 12 WT, 7  $\gamma c^{Tg}$ , and 16  $Cd1d^{-/-}\gamma c^{Tg}$  mice.