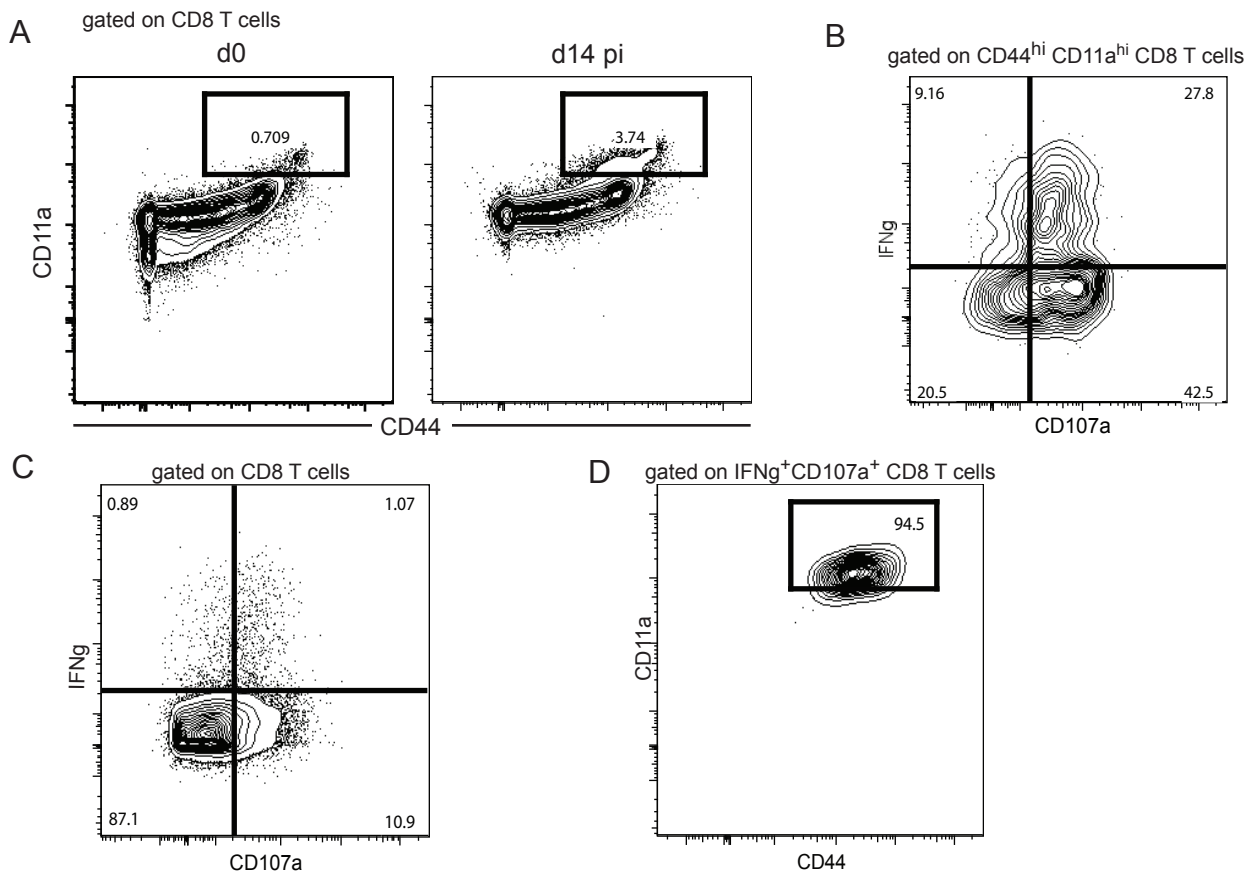


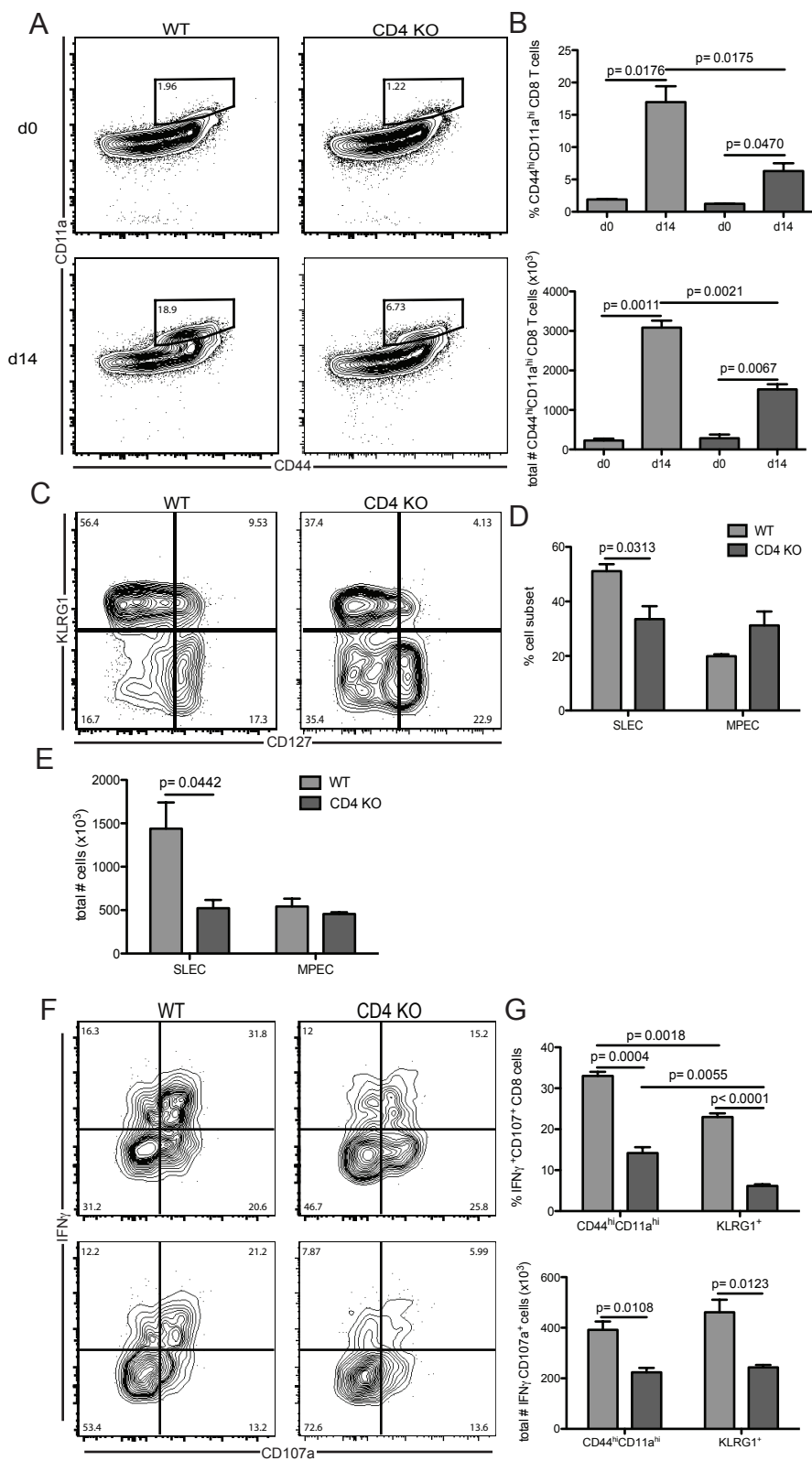
**Supplementary figure 1: Common  $\gamma$  chain cytokines after microsporidia infection**

Expression of common  $\gamma$  chain cytokines IL-2 (A), IL-7 (B) and IL-15 (C) were assessed by real time PCR in the spleen of C57B/6 mice at different time points post-infection. Data represent two independent experiments with 3-4 mice per time point.



**Supplementary figure 2: Validation of CD11a and CD44 as surrogate markers for *E. cuniculi* specific CD8 T cells**

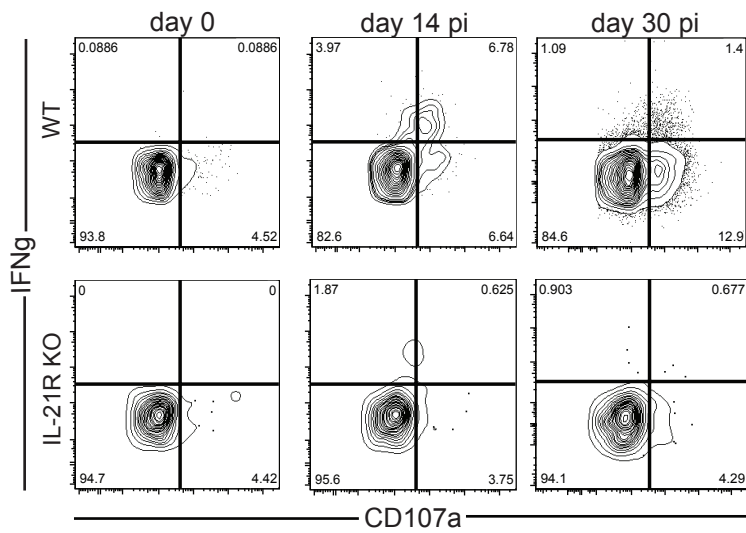
A) Antigen specific CD8 T cells (CD44<sup>hi</sup>CD11a<sup>hi</sup>) were assessed in WT animals at day 14 p.i. by flow cytometry. Dot plots were gated on total CD8 T cells. B-C) Functionality of antigen specific (CD44<sup>hi</sup>CD11a<sup>hi</sup>) (B) or total CD8 T cells (C) from infected animals was measured via expression of IFN $\gamma$  and CD107a. Dot plot in (B) is gated on CD44<sup>hi</sup>CD11a<sup>hi</sup> CD8 T cells while (C) is gated on total CD8 T cells. D) Expression of CD11a and CD44 by IFN $\gamma$ <sup>+</sup>CD107a<sup>+</sup> total CD8 T cells. Dot plot is gated on IFN $\gamma$ <sup>+</sup>CD107a<sup>+</sup> CD8 T cells. Experiments were performed at least twice and data are representative of one experiment.



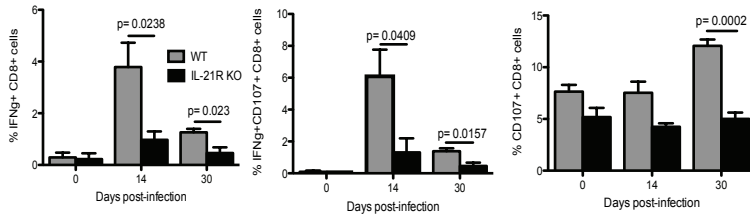
### Supplementary figure 3: Impaired effector CD8 T cell response in absence of CD4 T cells

Splenic CD8 T cell response from WT and CD4 KO mice was analyzed at day 14 post-*E. cuniculi* infection. A) Antigen specific CD8 T cell response from WT and CD4 KO mice was analyzed at day 14 p.i. via surrogate markers staining (CD44<sup>hi</sup>CD11a<sup>hi</sup>). B) Graphs represent frequency and absolute number of CD44<sup>hi</sup>CD11a<sup>hi</sup> cells amongst total CD8 T cells for either WT or CD4 KO animals. C) KLRG1 and CD127 expression by CD8 T cells was analyzed by flow cytometry. Plots are gated on CD44<sup>hi</sup>CD11a<sup>hi</sup> CD8 T cells. D) Graph represents frequency of SLEC and MPEC amongst CD44<sup>hi</sup>CD11a<sup>hi</sup> CD8 T cells. E) Graph depicts total number of SLEC and MPEC amongst CD44<sup>hi</sup>CD11a<sup>hi</sup> CD8 T cells. F) Functionality of KLRG1<sup>+</sup> CD8 T cells was measured by flow cytometry analysis of IFN $\gamma$  and CD107a at day 14 pi. Plots are gated on total CD8 T cells. G) Graphs represent frequency and total number of IFN $\gamma$ <sup>+</sup>CD107a<sup>+</sup> cells amongst KLRG1<sup>+</sup> CD8 T cells for each strain at day 14p.i.

A



B



#### Supplementary figure 4: CD8 T cell response at day 30 post-microsporidia infection

Splenic CD8 T cell response of from WT and IL-21R KO mice was analyzed at day 14 and 30 post-*E. cuniculi* infection. A) CD8 functionality was determined by intracellular staining for IFN $\gamma$  and CD107a. Plots are gated on total CD8 T cells. B) Graphs represent frequency of IFN $\gamma$ <sup>+</sup>, IFN $\gamma$ <sup>+</sup>CD107a<sup>+</sup> and CD107a<sup>+</sup> cells amongst total CD8 T cells for either WT or IL-21R KO animals. Experiments were performed at least twice and data are representative of one experiment.