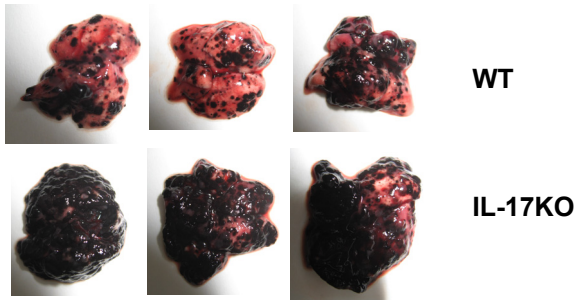
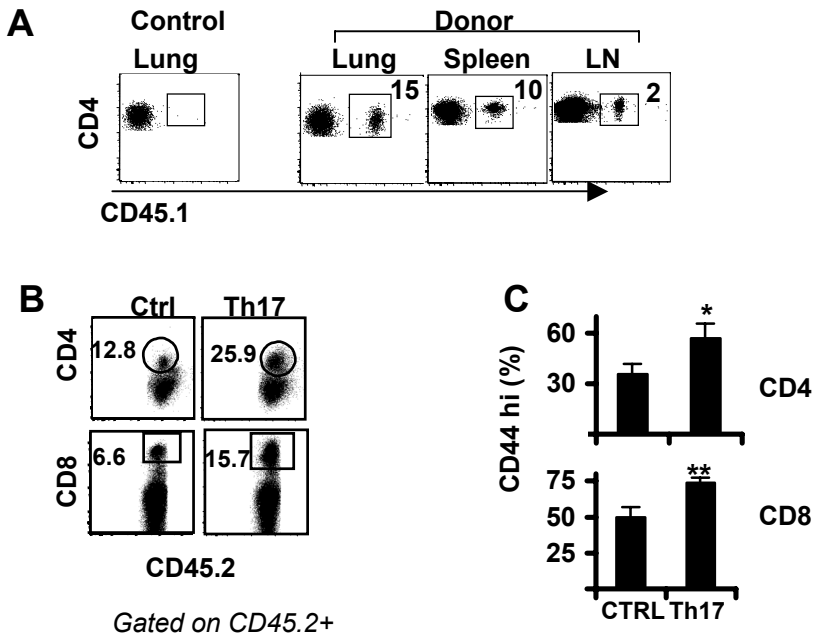
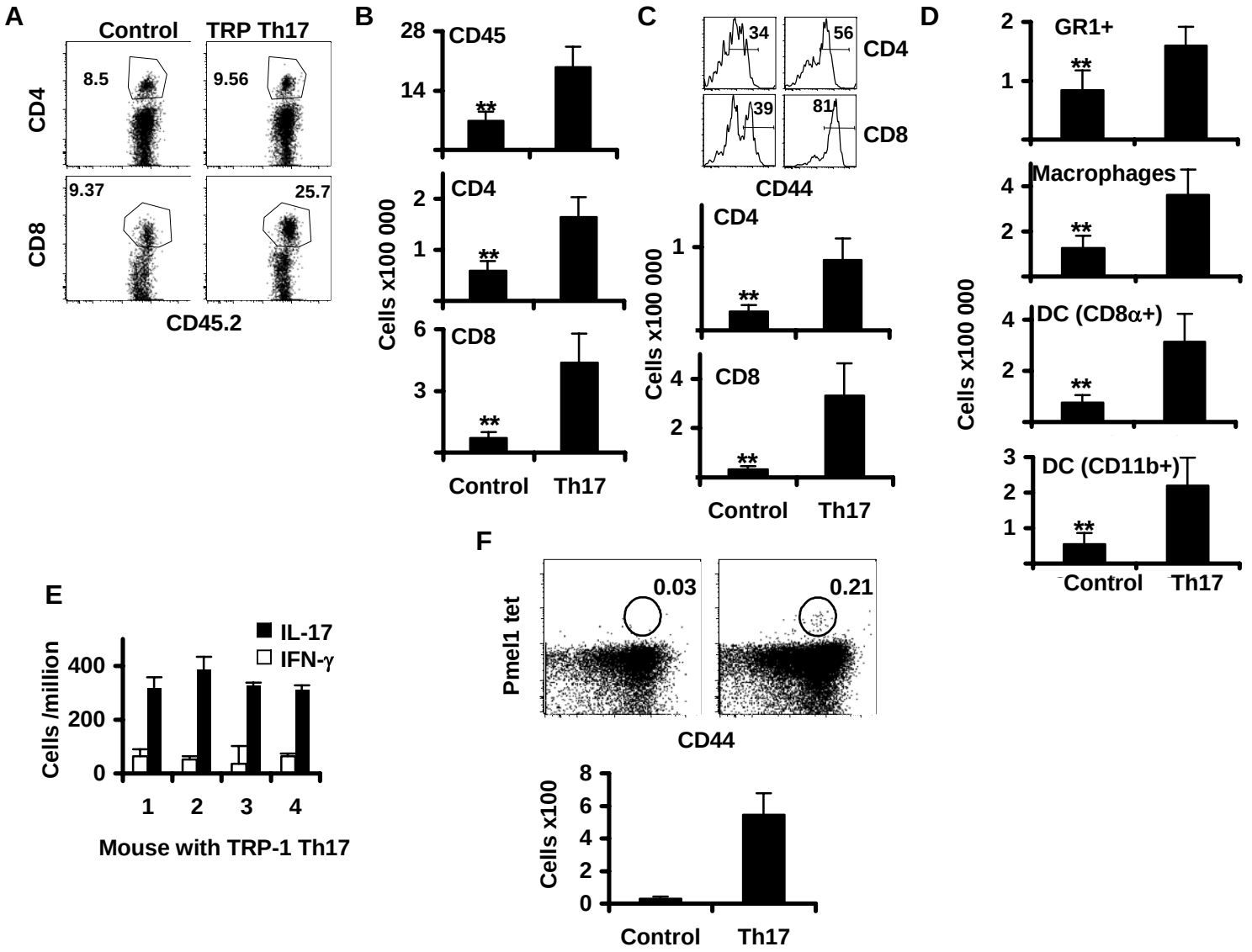


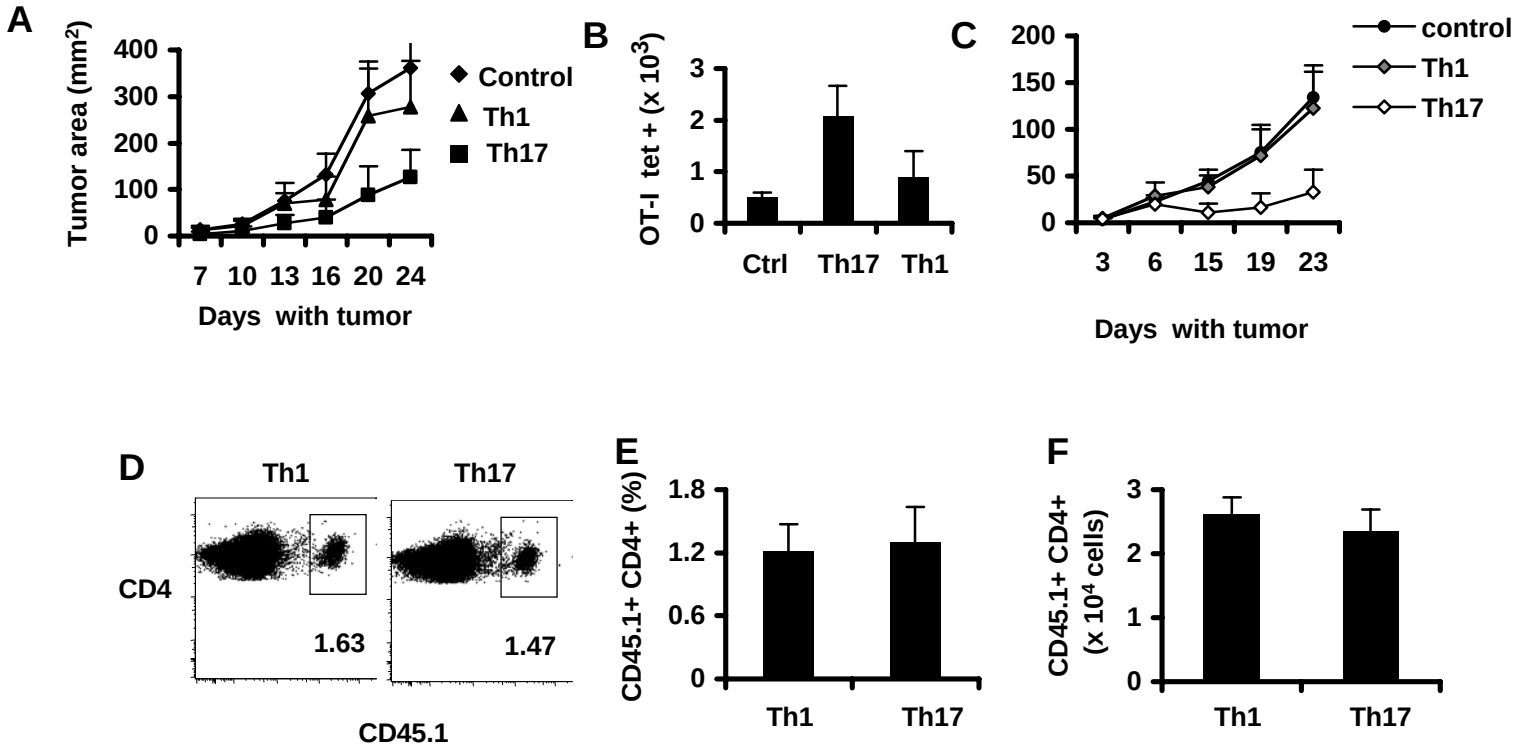
Supplementary figure 1. IL-17 deficient mice (KO) that have been backcrossed 6 times into C57BL/6 strain and wild type C57BL/6 mice (WT) were injected iv with $1x10^5$ B16/F10 cells and on day 16 mice were euthanized. Photographs show the lung lobes of these mice. WT mice had an averaged of 250 colonies +/- 46 SD. IL-17 KO mice colonies were not counted because of multiple tumor fusions.



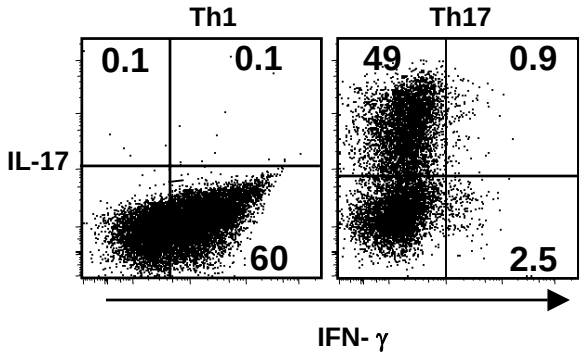
Supplementary Figure 2. A. OT-II Th17 cells persist in mice challenged with B16/OVA . CD45.1+ OT-II T cells were differentiated to Th17 cells and were injected into CD45.2 C57Bl/6 recipient mice, which were sacrificed on day 16. T cells recovered from lymph nodes (**LN)**, spleen and lungs of mice are shown in the dot plots. **B and C**. **Mice treated with Th17 cells have increased total T cells numbers in the lung and increased numbers activated CD4+ and CD8+ cells. B.** Dot plots showing the percentages of CD4+ and CD8+ T cells in the leukocyte fraction of lungs from mice treated with Th17 or control mice (Ctrl). **C.** Increased percentage of CD44hi cells in CD4+ and CD8+ T cell populations from mice treated with Th17 cells, from 5 mice per group (+/- s.d). * $p < 0.01$, ** $p < 0.05$.



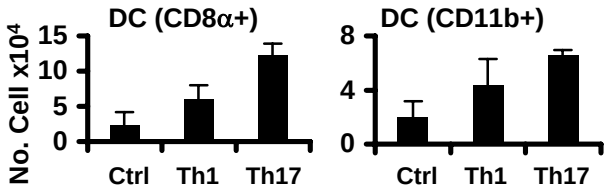
Supplementary figure 3. C57BL/6 mice were injected with 1 x10^5 B16F10 cells iv and one group of mice received 3 million CD4+ cells from TRP-1 transgenic mice, which have been cultured into Th17 cells (TRP-1 Th17). After 16 days, mice were euthanized and lung and lung lymph nodes were harvested for cell analysis. **A.** CD4+ and CD8+ T cells from leukocyte fraction of the lungs. **B.** Total number of CD45+,CD4+ and CD8+ cells from leukocyte fraction of the lung. **C.** CD44 expression on gated CD45+CD4+ or CD45+CD8+ cells. **D.** Total number of GR1 (CD45+CD11B+ $GR1^{hi}$), Macrophages (CD45+CD11b+ CD11c-), DC CD8a +(CD45+CD11c+CD8α+) and DC CD11b+ (CD45+CD11c+CD11b+CD8α-). **E.** IFN-γ and IL-17 producing cells specific for TRP-1 $_{(106\text{-}130)}$ peptide from lymph node cells from mice treated with TRP-1 Th17 cells were identified by ELISPOT. Individual mice lymph node cells are shown in the graph. **F.** CD45+CD8+ cells from the lung leukocyte fractions were analyzed for D^b tetramer carrying human gp10025–33 (KVPRNQDWL) (PMEL tet). The graph represents the total cell numbers of PMEL + cells.



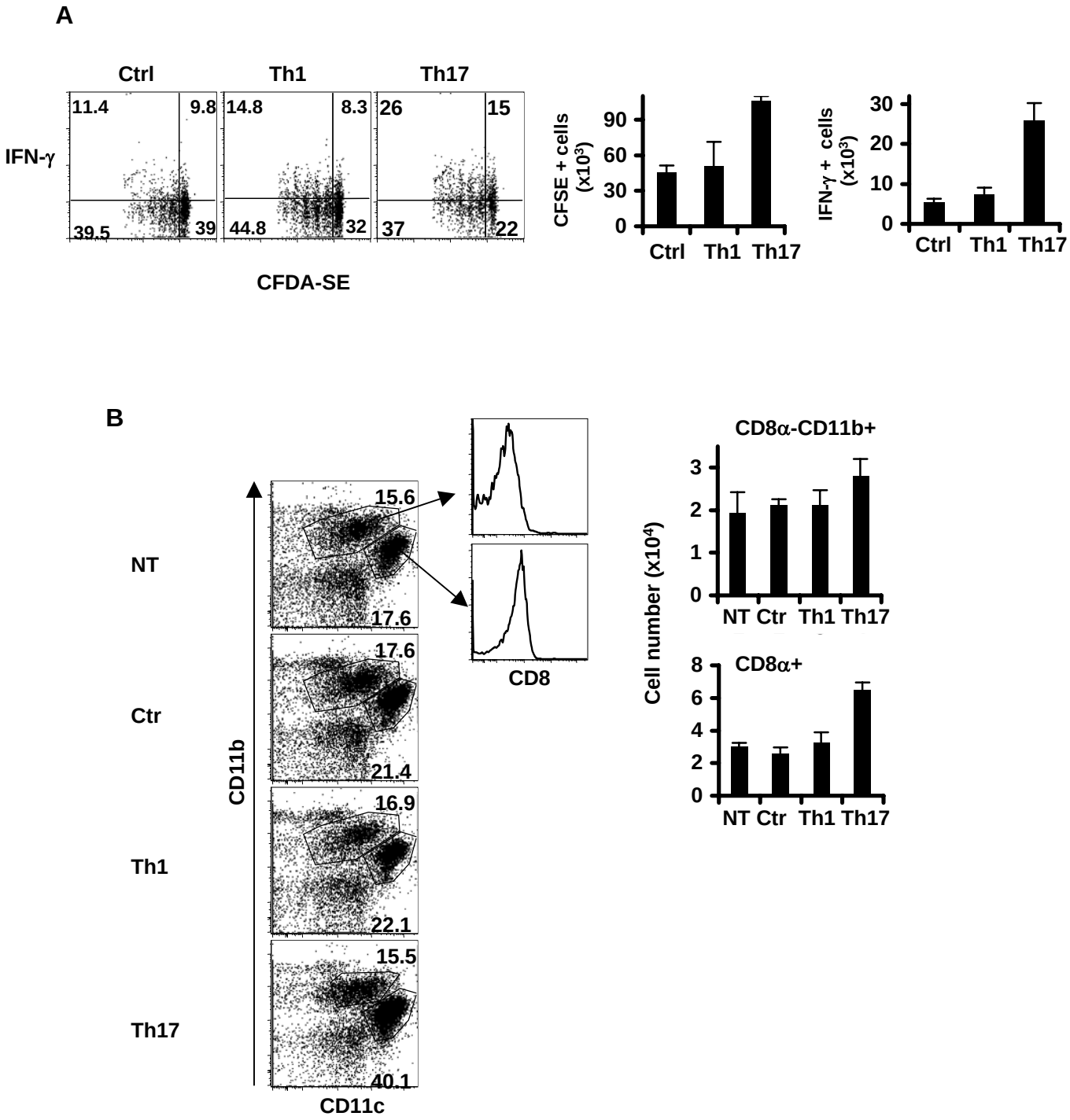
Supplementary Figure 4: A and B. 0.3 million B16-OVA cells were injected sc in the frontal area of the abdomen of C57BL/6 mice together with PBS or 3 million OT-II cells, which have been polarized to either Th1 or Th17 cells for 4 days. **A**. Measurement of tumor areas. **B.** Mice were euthanized either on day 20 or day 24 and inguinal lymph node cells were analyzed for the presence of SIINFKEL-K^b tetramer positive cells by flow cytometry. **C**. 0.5 million MCA 205-OVA cells were injected sc in the frontal area of the abdomen of C57BL/6 mice together with PBS or 3 million CD4+OT-II+ Ly5.1+ cells, which were polarized to either Th1 or Th17 cells for 4 days. Tumor areas are shown. **D.** Mice were sacrificed on day 23 and cells from tumor draining lymph nodes were analyzed for the presence of donor CD45.1+ OT-II cells by flow cytometry. Shown is a representative dot plot. **E.** Average percentage of CD4+CD45.1+ cells from tumor draining lymph nodes of 5 mice per group. **F**.Average of the total number of CD4+CD45.1+ cells from tumor draining lymph nodes of 5 mice per group.



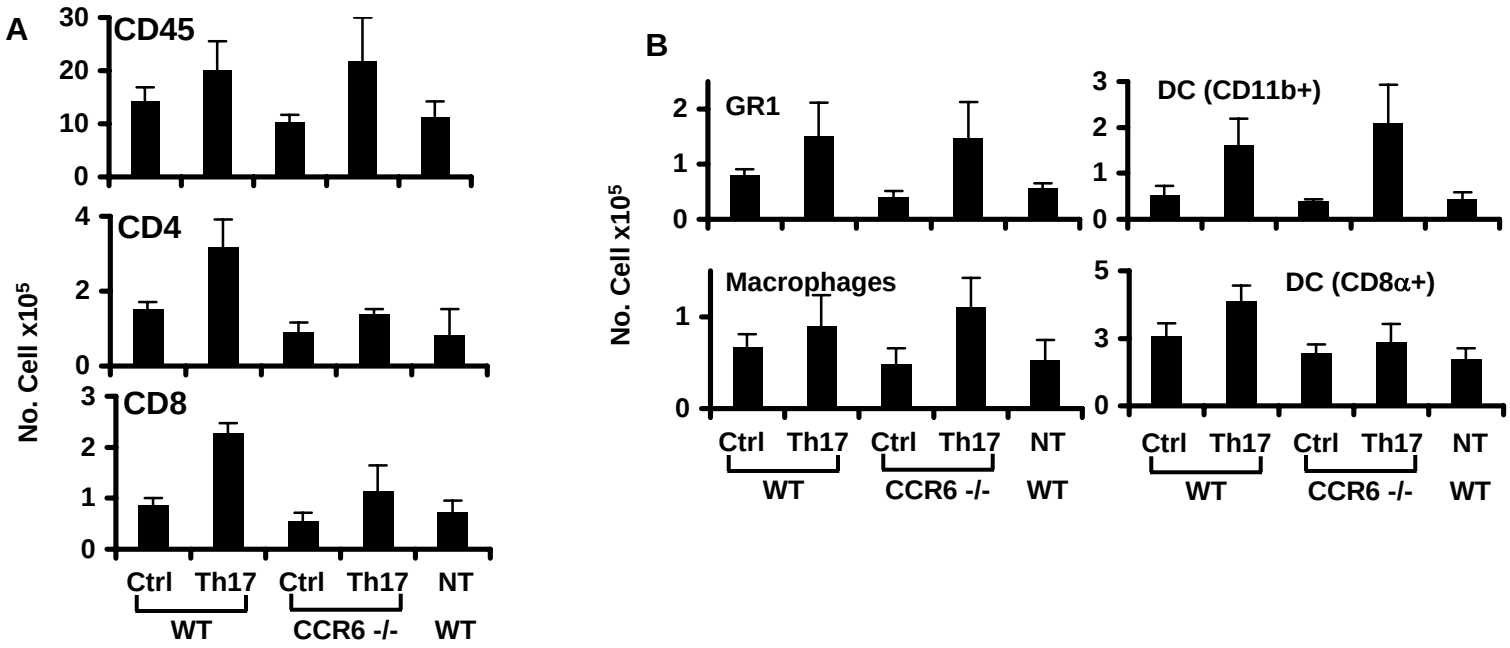
Supplementary figure 5. Cytokine profiles of OT-II cells polarized to either Th1 or Th17 cells before transferred into C57BL/6 mice harboring B16-OVA tumors. Dot plots show IL-17- and IFN-γ-intracellular staining. Numbers in the boxes represent percentages of cells.



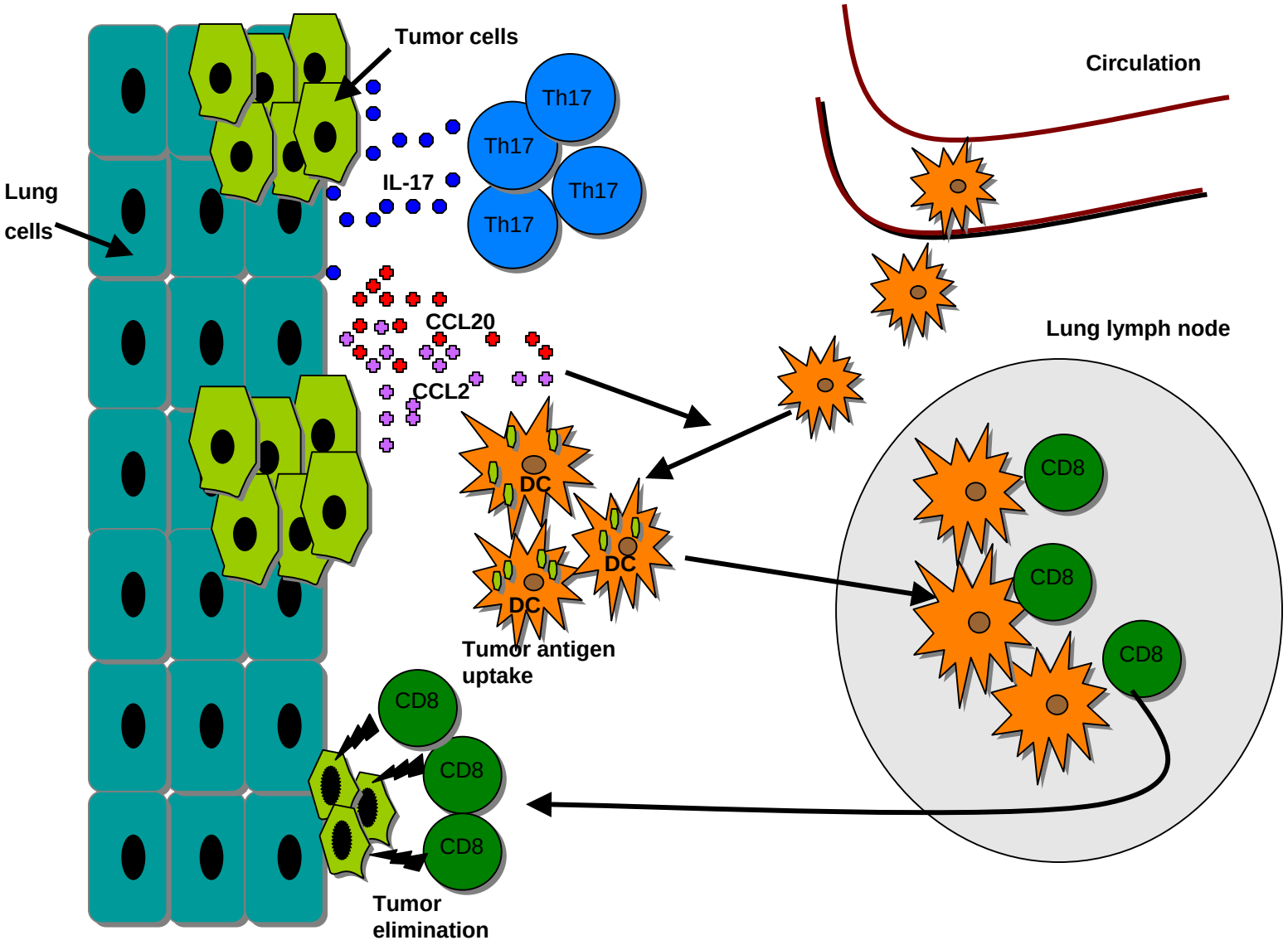
Supplementary figure 6. C57BL/6 mice were injected with 1 x10^5 B16- OVA cells iv. On day 5, mice received either PBS or 3 million Th1 or Th17 OT-II cells iv. After 16 days, mice were euthanized and lung lymph nodes were harvested for cell analysis. Lymph nodes were digested with collagenase A, and 0.01M EDTA and cells were stained with antibodies against CD11b, CD11c, CD8α GR1 and MHCII. Cells were analyzed for the presence of DC CD8α +(CD11c+CD8α+) and DC CD11b+ (CD11c+CD11b+CD8α-). Graphs represent the total numbers of cells from the lung lymph nodes after counting live cells, considering live gate and CD11c+ gate.



Supplementary Figure 7. A. C57BL/6 mice were injected i.v. with 0.1 million B16-OVA and 5 days later these mice were transferred with 3 million CFDA-SE labeled OT-I CD8+ T cells and either PBS (Ctrl) or 3 million OT-II CD4+ T cells which were differentiated into Th1 or Th17 cells. Mice were euthanized on day 3 after OT-I transfer and lung lymph node cells were stained for CD8 and IFN-γ and further analyzed by flow cytometry. The graphs on the right represent the total number of cells CFDA-SE recovered and the cells that are CFSE low and IFN-γ+ from the group of mice analyzed. **B.** C57BL/6 mice were injected i.v. with 0.1 million B16-OVA and 5 days later these mice were transferred with either PBS (Ctrl) or 3 million OT-II CD4 cells which were differentiated into Th1 or Th17 cells. Mice were euthanized on day 3 after OT-II transfer and lung cells were stained for CD45, CD11c, CD11b, CD8α and CD3 and further analyzed by flow cytometry.The gates show the DC CD8α+ and CD8α- CD11b+ as shown in the histograms on the right. The graphs represent the total number of DCs from each gate of all the mice analyzed. (NT: Mice with no tumor or T cells)



Supplementary Figure 8. C57BL/6 mice(WT) or CCR6-deficient mice (CCR6-/-) were injected with 1 x10^5 B16-OVA cells iv and one group of mice received 3 million Th17 differentiated OT-II cells on the same day. After 16 days mice were euthanized and lungs and lung lymph nodes were harvested for cell analysis. **A.** Total numbers of CD45+, CD4+ and CD8+ cells from leukocyte fraction of the lungs. **B.** Total number of GR1 (CD45+CD11B+ $GR1^{hi}$), Macrophages (CD45+CD11b+CD11c-), DC CD8α +(CD45+CD11c+CD8α+) and DC CD11b+ (CD45+CD11c+CD11b+CD8α-).



Supplementary Figure 9. Proposed mechanism by which Th17 cells induce an anti-tumor immune response against lung metastasis. During tumor invasion in the lung, Th17 cells are attracted to the lung where they secrete IL-17. IL-17 promotes the secretion of CCL2 and CCL20 by lung and tumor cells, which results in the recruitment of leukocytes (including DCs) to the tumor site. DCs uptake tumor antigens in the lung and migrate to the lymph nodes where they activate CD8+ T cells against the tumor. The new wave of effector CD8+ cells migrate to the lung and kill established tumors.