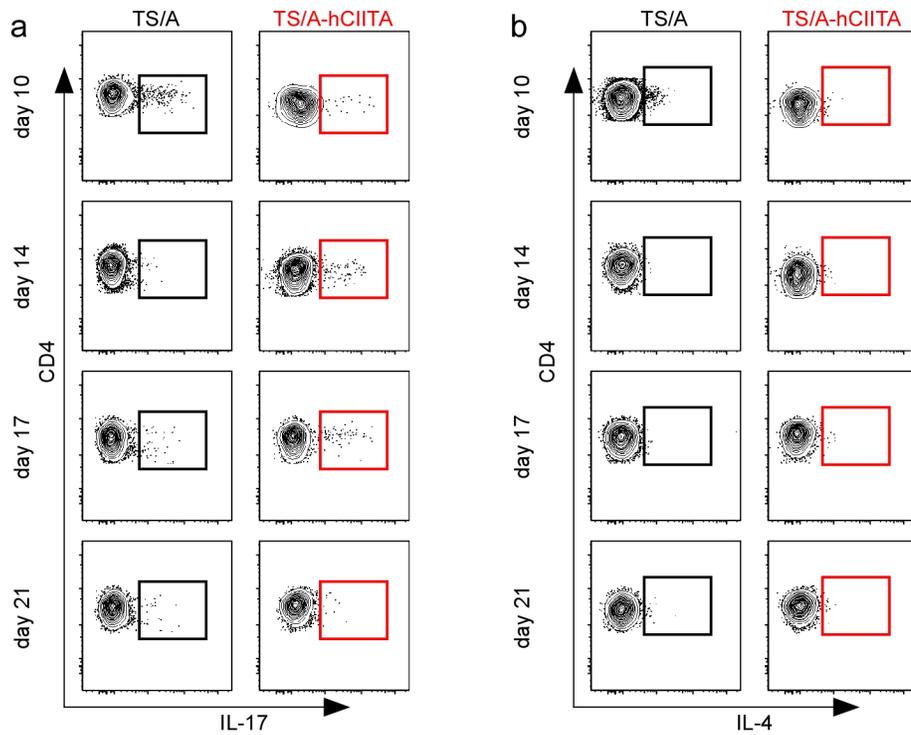
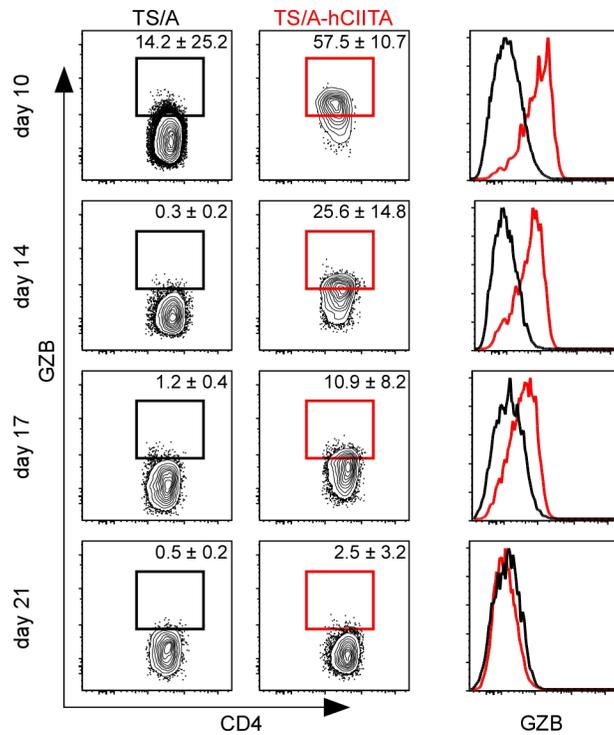


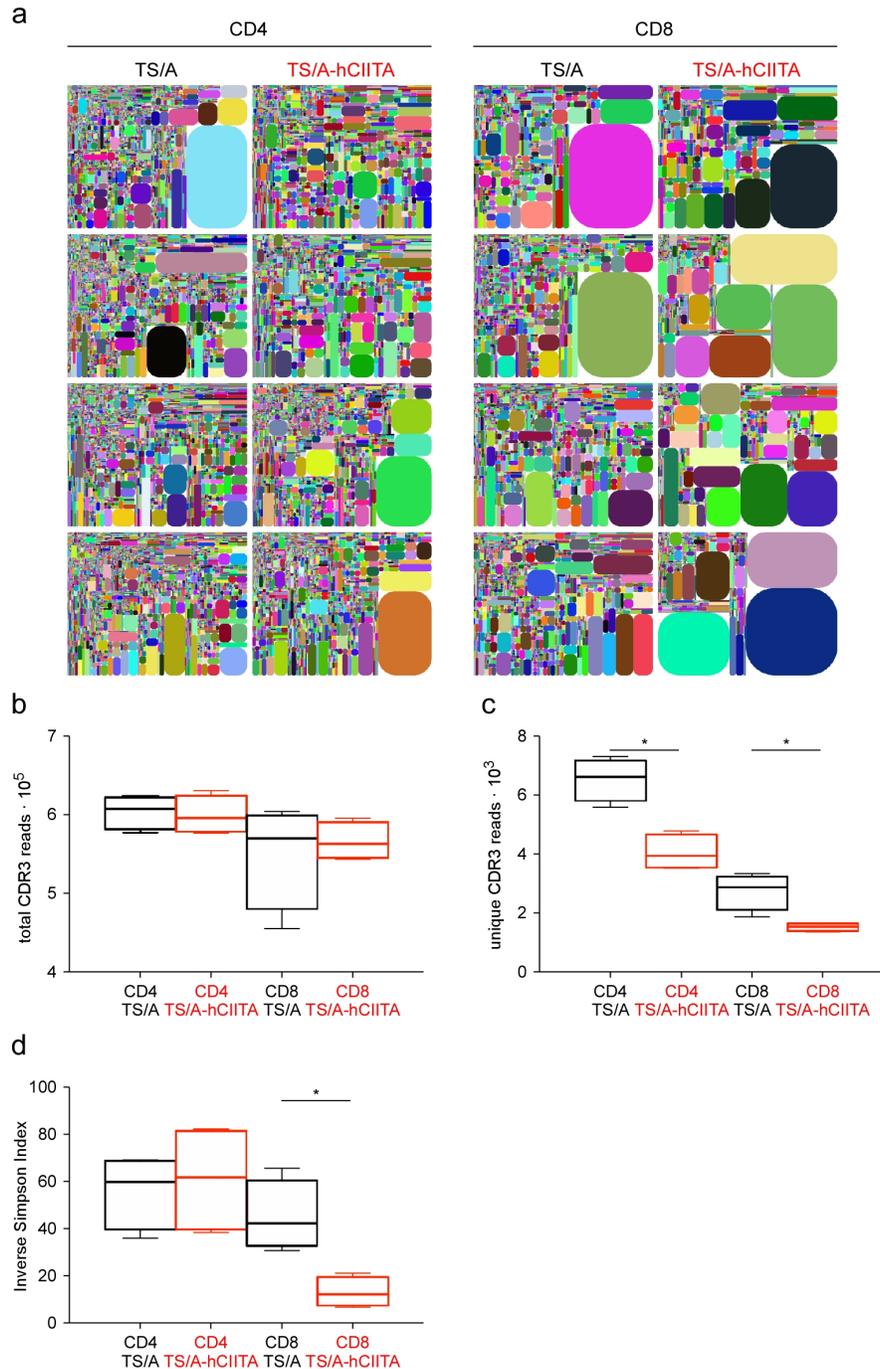
Supplemental Figure 1. Transfection with hCIITA drives surface expression of murine MHCII. **a.** Protein expression of hCIITA, CD74, and IA/IE was detected by Western Blot on TS/A cells or TS/A cells transfected with hCIITA or empty vector. **b.** MHCII surface expression on TS/A control (black histogram) or TS/A-hCIITA (red histogram) cells was demonstrated by flow cytometry. **c.** DNA content of TS/A control (black histogram) or TS/A-hCIITA (red histogram) cells was determined by propidium iodide staining. These procedures were performed twice with similar results.



Supplemental Figure 2: Tumor MHCII expression does not generate Th17 or Th4. TS/A (black) and TS/A-hCIITA (red) tumors were excised on days 10, 14, 17, and 21 post-injection and single cell suspensions restimulated in vitro. **a.** IL-17 production measured by flow cytometry and gated on live, CD3+, CD4+ cells. **b.** IL-4 production measured by flow cytometry and gated on live, CD3+, CD4+ cells.



Supplemental Figure 3: Tumor MHCII expression stimulates granzyme B production in CD4+ T cells. TS/A (black) and TS/A-hCIITA (red) tumors were excised on days 10, 14, 17, and 21 post-injection and single cell suspensions restimulated in vitro. Granzyme B (GZB) production by intratumoral CD4+ T cells, as measured by flow cytometry. Right-most plots are representative overlaid histograms for visual comparison. Plots gated on live, CD3+, CD4+ T cells.



Supplemental Figure 4. CD8+ T cells predominantly expand in MHCII-expressing tumors. TS/A and TS/A-hCIITA tumors were harvested on day 17, processed to single cell suspensions, and CD4+ and CD8+ T cells sorted by FACS. Unique TCR clonotypes were then determined by sequencing the TCR β CDR3 regions in purified CD4+ or CD8+ T cell RNA. **a.** Tree-map plots show relative sizes of individual CD4+ and CD8+ T cell clonotypes from MHCII-expressing and control tumors. **b.** Total CDR3 reads from each sample confirm similar sequencing depth. **c.** Unique CDR3 reads in each sample. **d.** Inverse Simpson Index quantifies clonal expansion and consequent reduction in read diversity. Statistical significance assessed by the non-parametric Mann-Whitney test and expressed as * $p < 0.05$.