**Figure S7 Legend:** A) Mean data (n=4) from flow cytometry analysis of Ki-67 expression in CD4 T cells (blue) and CD8+ T cells (black) from longitudinal PBMC samples from patients treated with vopratelimab +/- nivolumab with confirmed partial responses by investigator assessment. (B) Purified CD4 T cells from patients with treatment-emergent ICOS-hi cells, compared to CD4 T cells from reference cancer patients form distinct clusters when applying unsupervised clustering. Depicted genes in this heatmap are genes that are significantly differentially expressed (FDR adjusted p-value < 0.05) across these two clusters and define key components of the transcriptional differences between the CD4 T-cell populations. (C) Representative flow cytometry analysis of CD4 T cells after 11 cycles of therapy (~8 months) from a gastric cancer patient treated with 0.01mg/kg vopratelimab in combination with nivolumab with confirmed partial response by investigator assessment. (D) Representative profiling of CD4 T cell subset markers in PBMC-derived CD4 T cells from a patient treated with 0.1mg/kg vopratelimab in combination with nivolumab with assessed after 25 cycles on treatment.

FDR, false discovery rate; ICOS, inducible co-stimulator; ICOS-hi, patients with an emergent CD4 T-cell population with high levels of ICOS; ICOS-lo, patients without emergence of a CD4 T-cell population with high levels of ICOS; PBMC, peripheral blood mononuclear cells.

**Figure S7. ICOS-hi CD4 T cells are a heterogeneous, proliferating population encompassing memory, cytotoxic, effector, and follicular helper subtypes**

