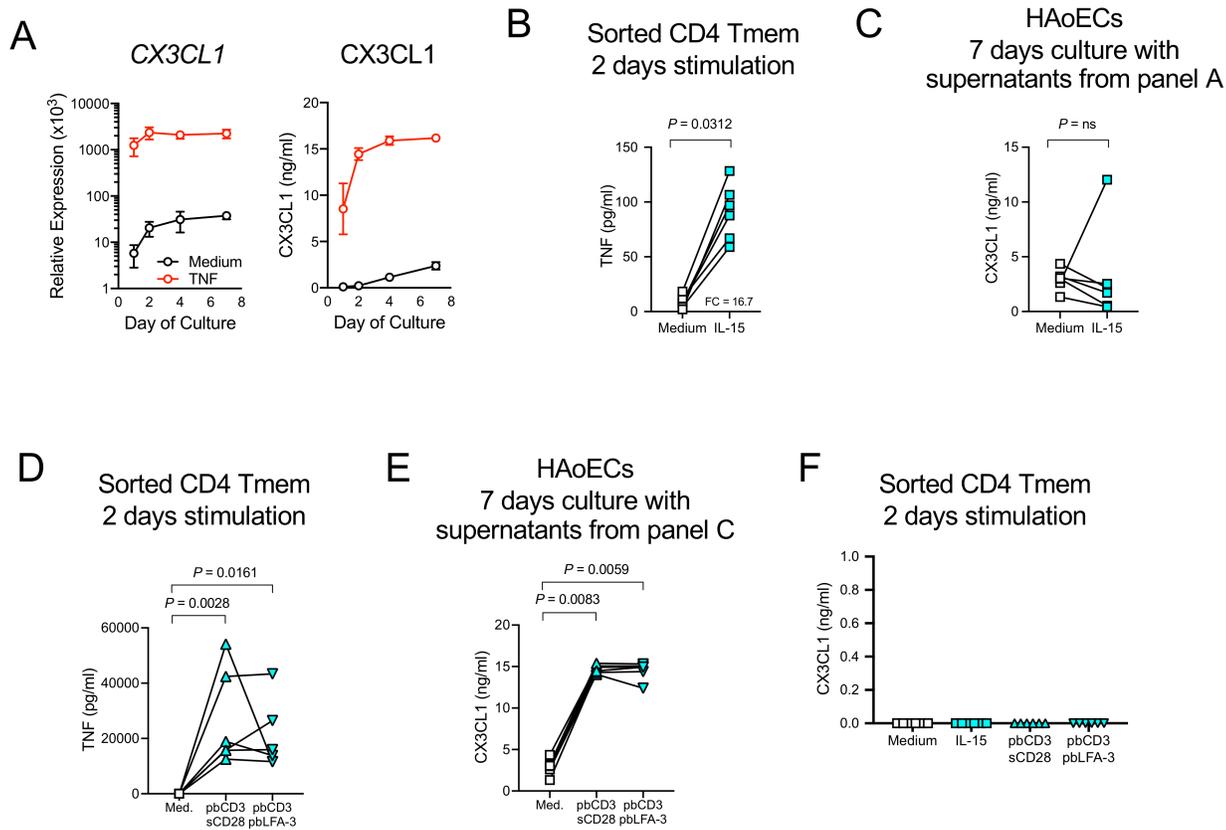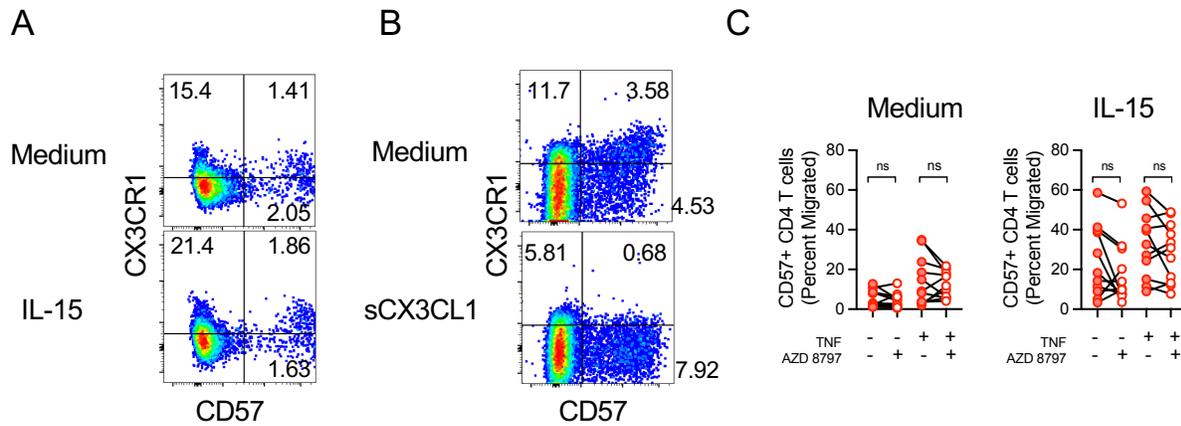**Figure S1.** CD28 costimulation enhances CD57- and CD57+ CD4 Tmem functionality. **(A)** Cumulative

cytokine/functions (IFNγ, TNF, IL-2, MIP-1β, and/or CD107a) by CD57- (gray) and CD57+ (purple) CD4 Tmem

from CMV-seronegative (n = 12, *top*) and CMV-seropositive (n = 9, *bottom*) donors after 6h stimulation with

medium control; plate-bound anti-CD3 (pbCD3), pbCD3 with soluble anti-CD28 (pbCD3/sCD28); or pbCD3

with plate-bound LFA-3 (pbCD3/pbLFA-3). Significance determined by pie comparisons using SPICE software,

with 10,000 permutations per comparison. **(B)** Percentage of CD57- and CD57+ CD4 Tmem in each donor

group that produce IL-2 after pbCD3 (CD3) or pbCD3sCD28 (CD3/CD28) stimulation. Significance determined

by Mann-Whitney test.

Figure S2. CD4 T cell-derived TNF induces CX3CL1 production from HAoECs. **(A)** (*Left*) Relative *CX3CL1* expression compared to GAPDH and (*Right*) CX3CL1 secretion in primary human aortic endothelial cells (n = 3) stimulated with medium control (black) or recombinant TNF (red). **(B)** Amount of TNF in culture supernatants by magnetic bead-enriched CD4 Tmem following 2 days of stimulation with IL-15 or medium control. Significance determined by Wilcoxon signed rank test. **(C)** Amount of CX3CL1 in culture supernatants of human aortic endothelial cells (HAoECs) following 7 days of stimulation with a 1:2 dilution of culture supernatants from Panel B. Significance determined by Wilcoxon signed rank test. **(D)** Amount of TNF in culture supernatants by magnetic bead-enriched CD4 Tmem following 2 days of stimulation with pbCD3 with medium control, soluble anti-CD28 (pbCD3/sCD28), or pbCD3 with plate-bound LFA-3 (pbCD3/pbLFA-3). Significance determined by Kruskal-Wallis test with Dunn's correction for multiple comparisons. **(E)** Amount of CX3CL1 in culture supernatants of human aortic endothelial cells (HAoECs) following 7 days of stimulation with a 1:2 dilution of culture supernatants from Panel D. Significance determined by Kruskal-Wallis test with Dunn's correction for multiple comparisons. **(F)** Amount of CX3CL1 in culture supernatants by magnetic bead-enriched CD4 Tmem following indicated stimulations.

Figure S3. CX3CR1 expression and CD57+ CD4 Tmem migration. **(A)** Representative dotplots (n = 11) showing CX3CR1 and CD57 expression on CD4 Tmem after 2 days of stimulation with medium control or IL-15, prior to use in transwell assay. **(B)** Representative dotplots (n = 4) showing surface expression of CX3CR1 and CD57 on CD4 Tmem following overnight exposure to CX3CL1 or medium control. **(C)** Absolute number of CD57+ CD4 Tmem in the lower chamber expressed as a percent of total (upper chamber + lower chamber) CD57+ CD4 Tmem ("Percent migrated") pre-treated with medium control (*left*) or IL-15 (*right*). Significance was determined by Wilcoxon signed rank test.