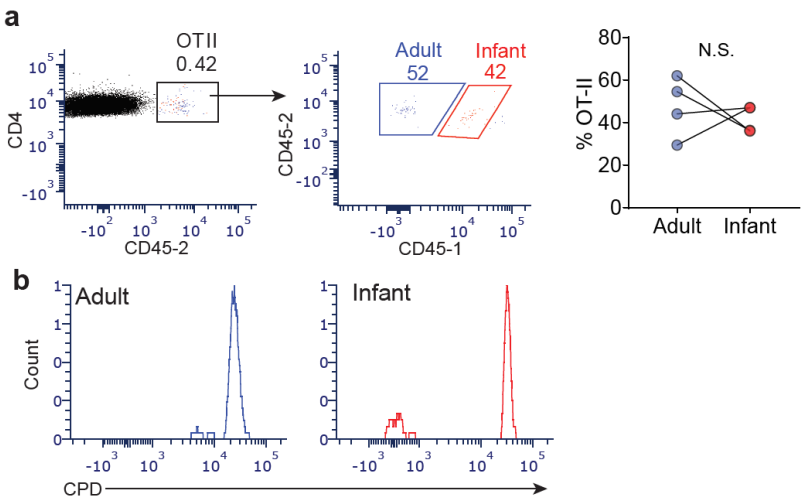
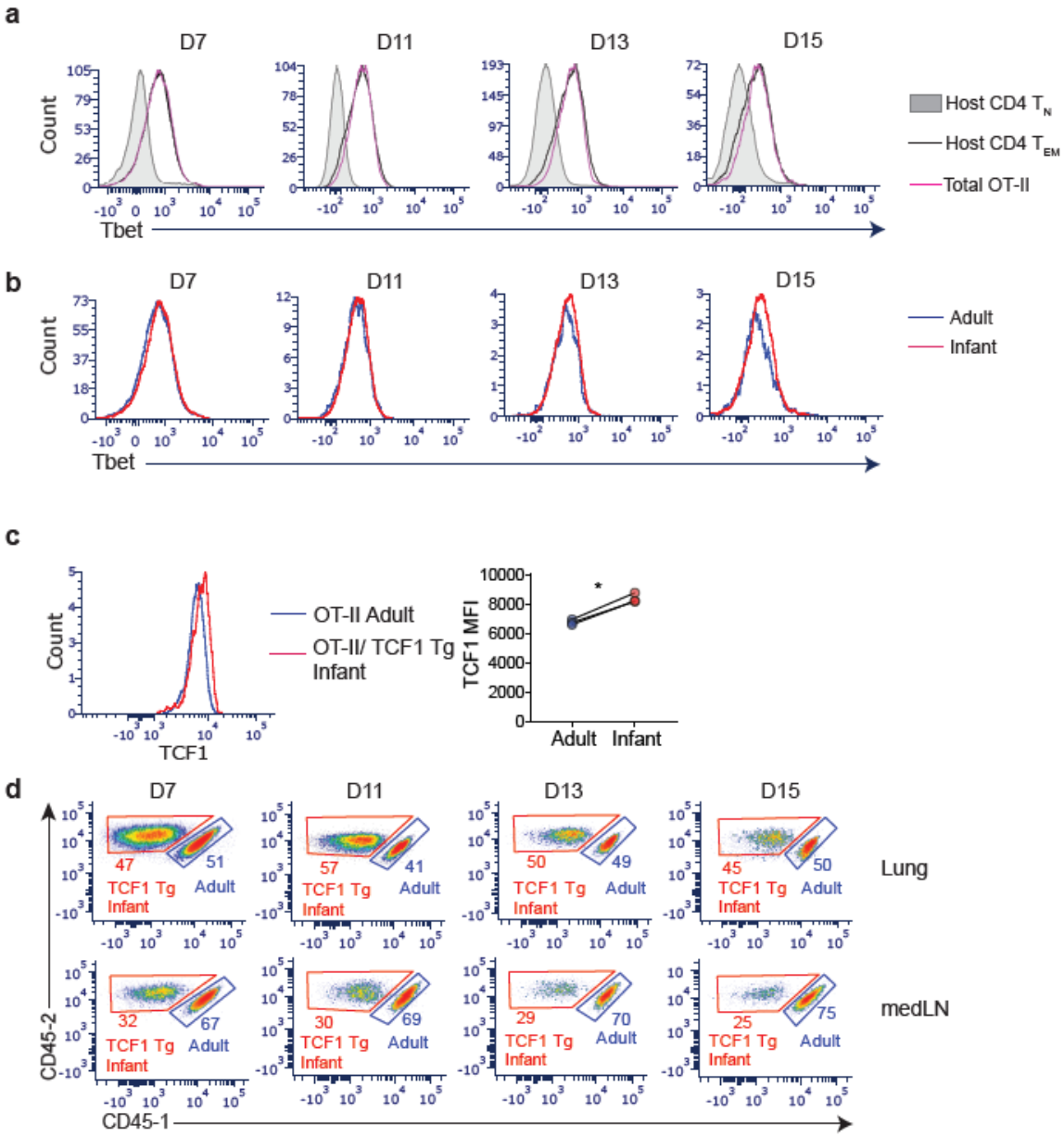
Supplemental Fig. 1:



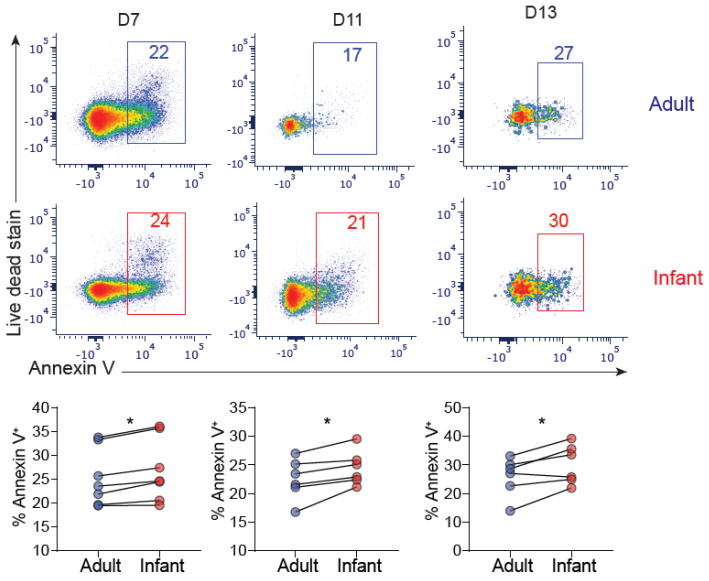
Supplemental Fig. 1: Frequency and proliferation dye staining of adult and infant T cells in the co-transfer model. a, Frequency of infant (red) and adult (blue) OT-II T cells in lungs of host mice at day 4 p.i. shown in representative flow cytometry plots (left and middle) and graph quantifying paired frequencies of individual host mice (right). **b**, Proliferation dye (CPD) staining in transferred infant and adult OT-II cells in the lungs at day 4 post infection. Data are representative of 2 independent experiments with n = 3-4 per group. Significance was determined using Student's paired *t* test.

Supplemental Fig. 2:



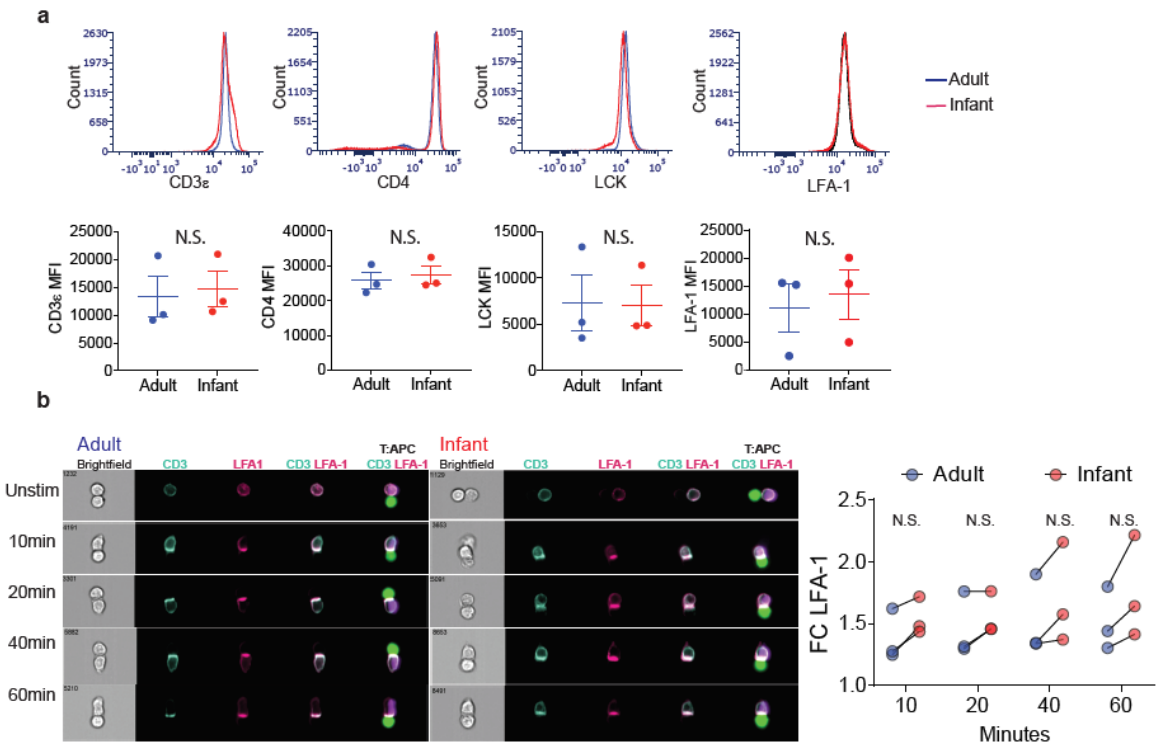
Supplemental Fig 2: Tbet and TCF1 expression in transferred OT-II T cells. a, Expression of Tbet in total OT-II (pink) and host effector T cells (black) (T_{EM}, $CD44^+$ $CD62L^-$) compared to host naive T cells (grey filled) (T_N, $CD44^-$ $CD62L^+$) in lungs at days indicated p.i. **b**, Representative flow plots showing Tbet expression in lung infant (red) and adult (blue) effector OT-II cells at indicated days p.i. **c**, Expression of TCF-1 shown in representative flow cytometry plot (left) and graph with MFI of TCF-1 (right) in transferred infant OT-II/TCF-1 tg (red) and adult (blue) OT-II cells in host mice at day 0 in LNs. **d**, Representative frequencies of OT-II/TCF-1 Tg infant (red) and OT-II adult (blue) effector cells from lungs and medLN of host mice at times indicated p.i. shown in flow cytometry plots. Data are representative of 2 independent experiments with n = 3 per group. Significance was determined using Student's paired *t* test.

Supplemental Fig 3:



Supplemental Fig 3: Infant effector T cells exhibit increased Annexin V compared to adult effector T cells in the lungs. (Top) Flow cytometry plots of Annexin V and viability dye staining in lung infant and adult effector T cells at day 7, 11, and 13 post PR8-OVA challenge. (Bottom) Paired frequencies of Annexin V+ OT-II cells gated on viable cells from individual host mice at indicated days p.i. Data are representative of 2 independent experiments with n = 3 per group. Significance was determined using Student's paired *t* test.

Supplemental Fig 4:



Supplemental Fig 4: Baseline expression of CD3ε, Lck, CD4, and LFA-1 by infant and adult T cells, and accumulation of LFA-1 in the IS following antigen stimulation. a, (Top) Representative flow plot showing expression of CD3ε, CD4, Lck, and LFA-1 in infant (red) and adult (blue) OT-II cells. (Bottom) MFI of CD3ε, CD4, Lck, and LFA-1 in unstimulated infant and adult OT-II T cells. **b**, Accumulation of LFA-1 (pink) with CD3 (turquoise) in T:APC conjugates in the IS of infant and adult T cells shown in representative images (left) and graph quantifying fold change (FC) relative to unstimulated control (right). Data are representative of 3 independent experiments. Significance was determined using Student's paired *t* test.