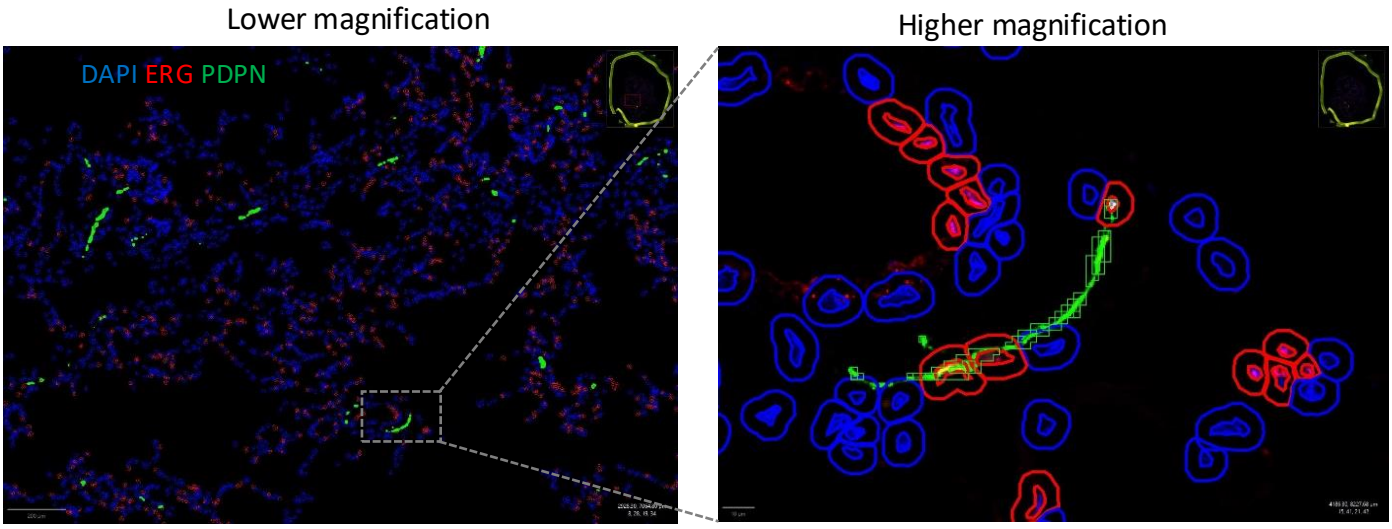
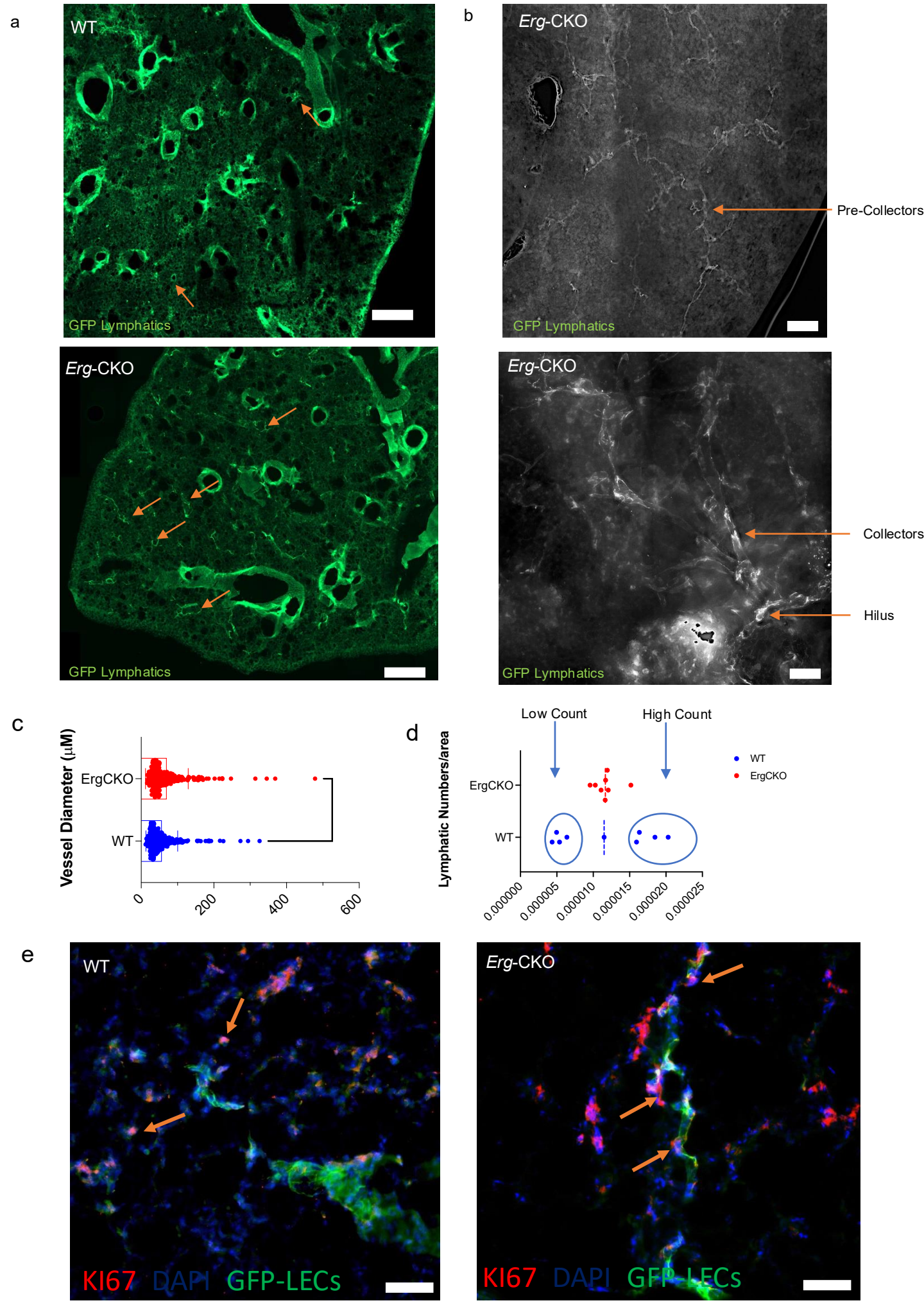
Supplementary Fig 1



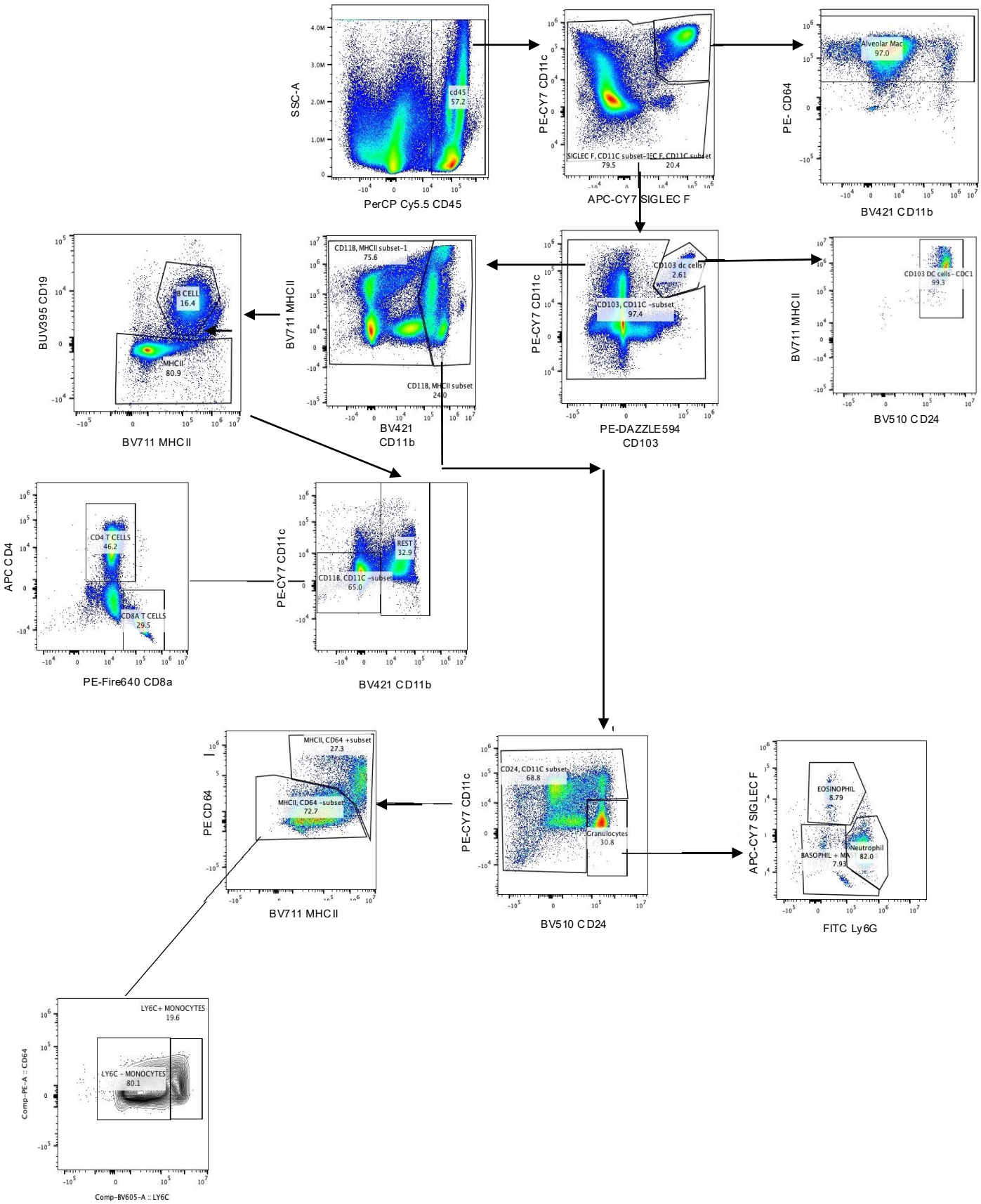
Supplementary Figure 1: a, Hematoxylin and Eosin staining of lung tissues from healthy controls and patients with SSc-ILD utilized for quantification of ERG+ cells. **b,** The representation of the annotations utilized for the digital quantification (left panel: lower magnification; right panel (higher magnification).

Supplementary Fig 2



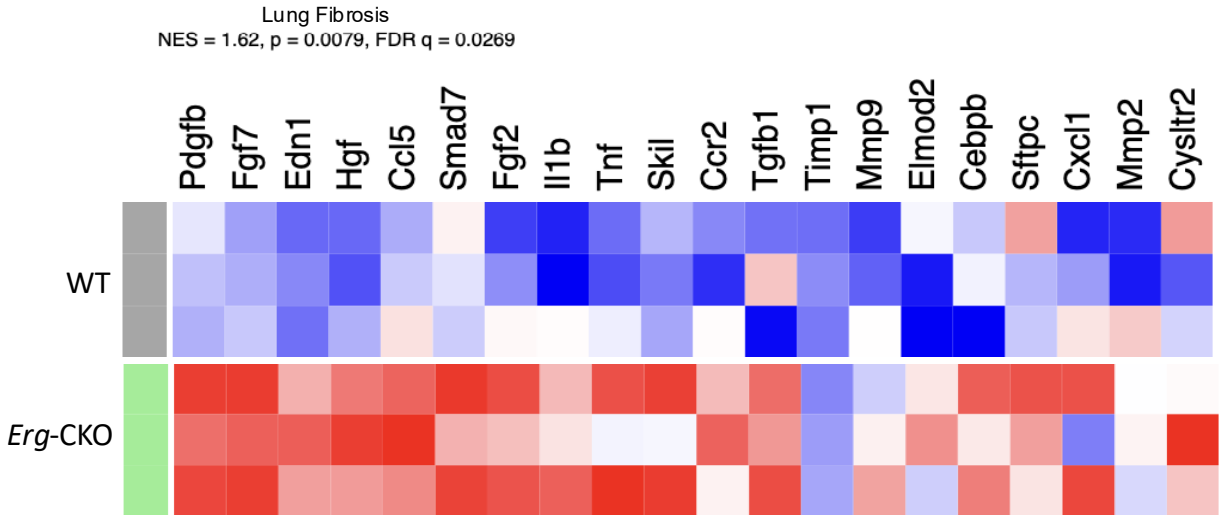
Supplementary Figure 2: ERG deletion does not alter baseline lymphatic proliferation and gross lymphatic architecture. a-b, Representative images of GFP+ lymphatic vessels at the lung hilus highlighting collector and pre-collector lymphatics in WT and *Erg*-CKO lungs. **c,** Vessel Diameter quantification of LECs in WT and *Erg*-CKO lungs **d**, Cross-sectional counts of lymphatic vessels in 3 vs 3 WT and *Erg*-CKO lungs divided into 9 cross sections (normalized to the total lung area). **e**, Representative immunofluorescence images of KI67, DAPI, and GFP+ lymphatic endothelial cells (GFP-LECs) in WT and *Erg*-CKO lungs.

Supplementary Fig 3



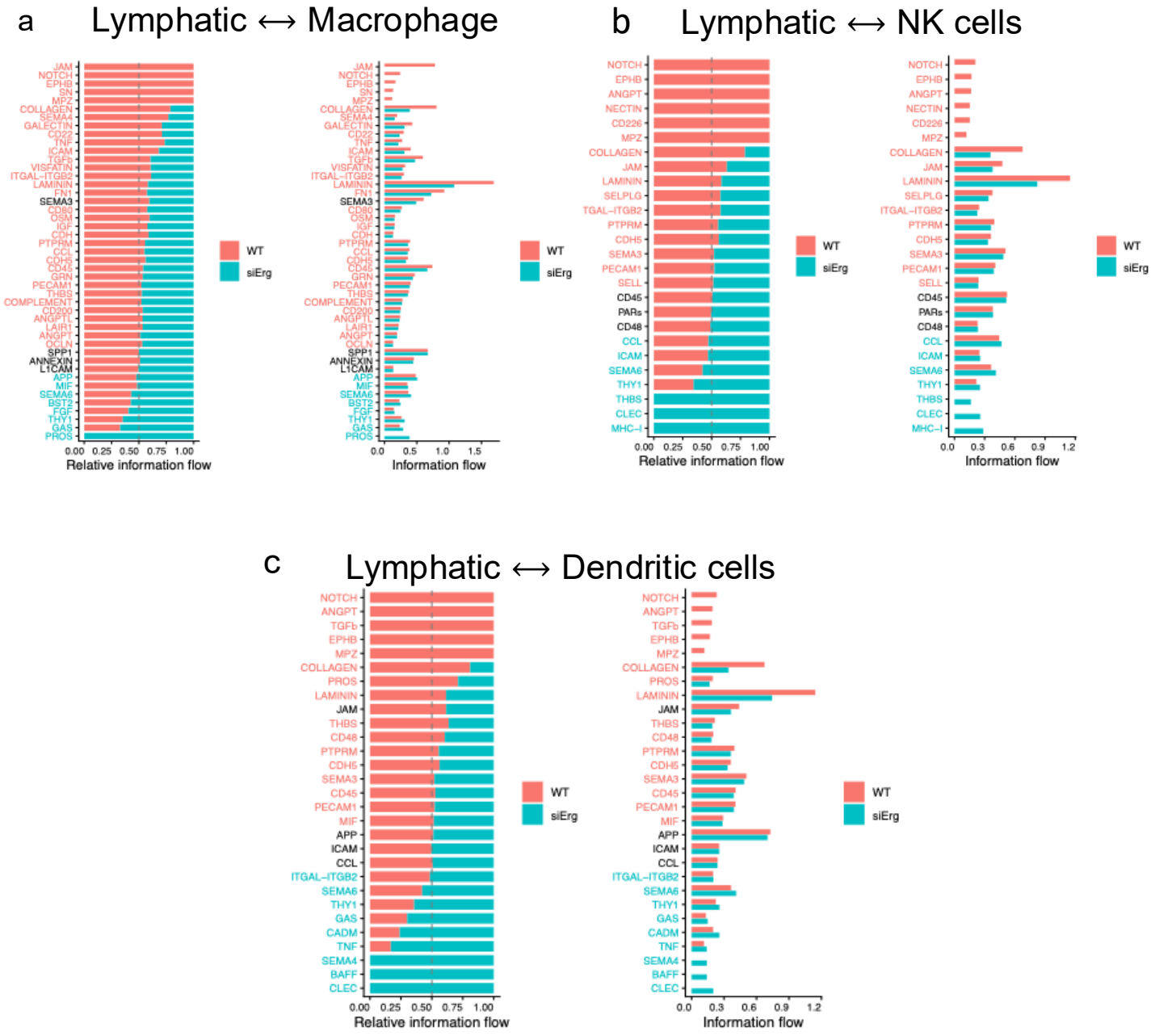
Supplementary Fig. 3: Flow-cytometric analysis of lymphoid and myeloid immune subsets in WT and *Erg*-CKO lungs (n = 8 WT vs 6 *Erg*-CKO, including Ly6C+ monocytes, interstitial macrophages, dendritic cells and eosinophils as indicated.

Supplementary Figure 4



Supplementary Figure 4: Erg-CKO lungs show altered fibrosis-associated gene expression signatures. **a**, Heatmap showing expression patterns of genes associated with pulmonary fibrosis in *Erg*-CKO lung.

Supplementary Figure 5



Supplementary Fig. 5: Analysis of cell-cell communication signaling pathways between Lymphatic Endothelial Cells (LECs) and immune cells in WT vs Erg-CKO conditions. Comparison of the communication patterns between lymphatic vessels and three major immune cell subsets: **a**, Macrophages, **b**, Natural Killer (NK) cells, and **c**, Dendritic cells. **Left Panels** (Relative Information Flow): Bar charts illustrating the relative contribution of specific signaling pathways to the total communication between cell types. **Right Panels** (Information Flow): Absolute information flow (sum of communication probabilities) for each signaling pathway. Pathways are color-coded by their enrichment in either the WT (salmon) or Erg-CKO (teal) condition.