



(A) UMAP plot of mouse cell, colored by infected status. gene expression marker of each subclusters. (B) AM<sub>1</sub>, (C) AM<sub>2</sub>, (D) AI; (top panel) mouse and (bottom panel) human. (E) Gene expression marker of IM<sub>1</sub> and IM<sub>2</sub> in human cells. (F) The UMAP plot of embeddings outputted by BAL cell for macaque and human COVID-19 infected bronchoalveolar lavage, applied with csMAHN. (G) Dot plot showing posterior probability of the human BAL cell integrating macaque and human BAL cell using csMAHN, The size of the dots corresponds to the proportion of each original label that is assigned to each csMAHN label.