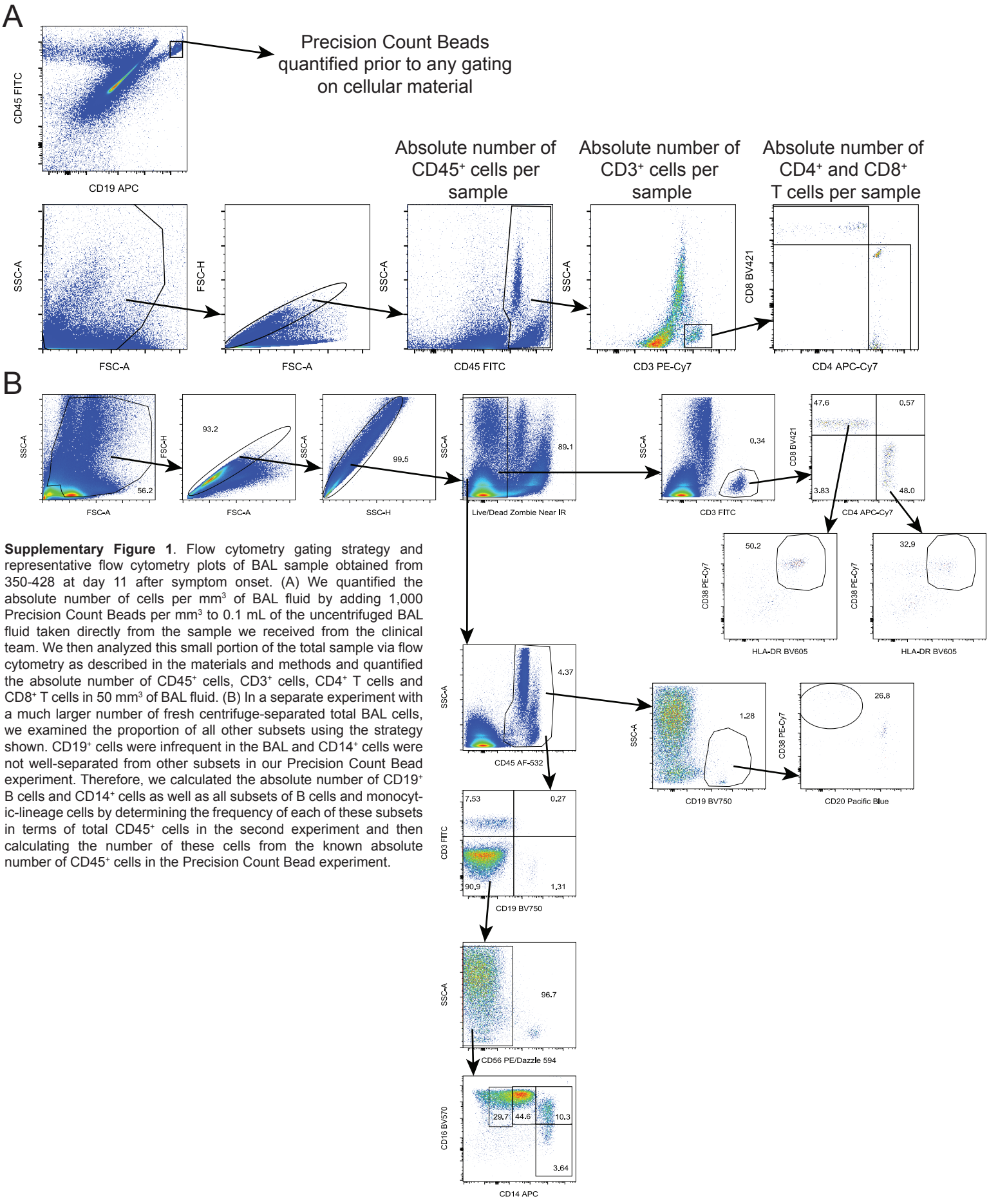
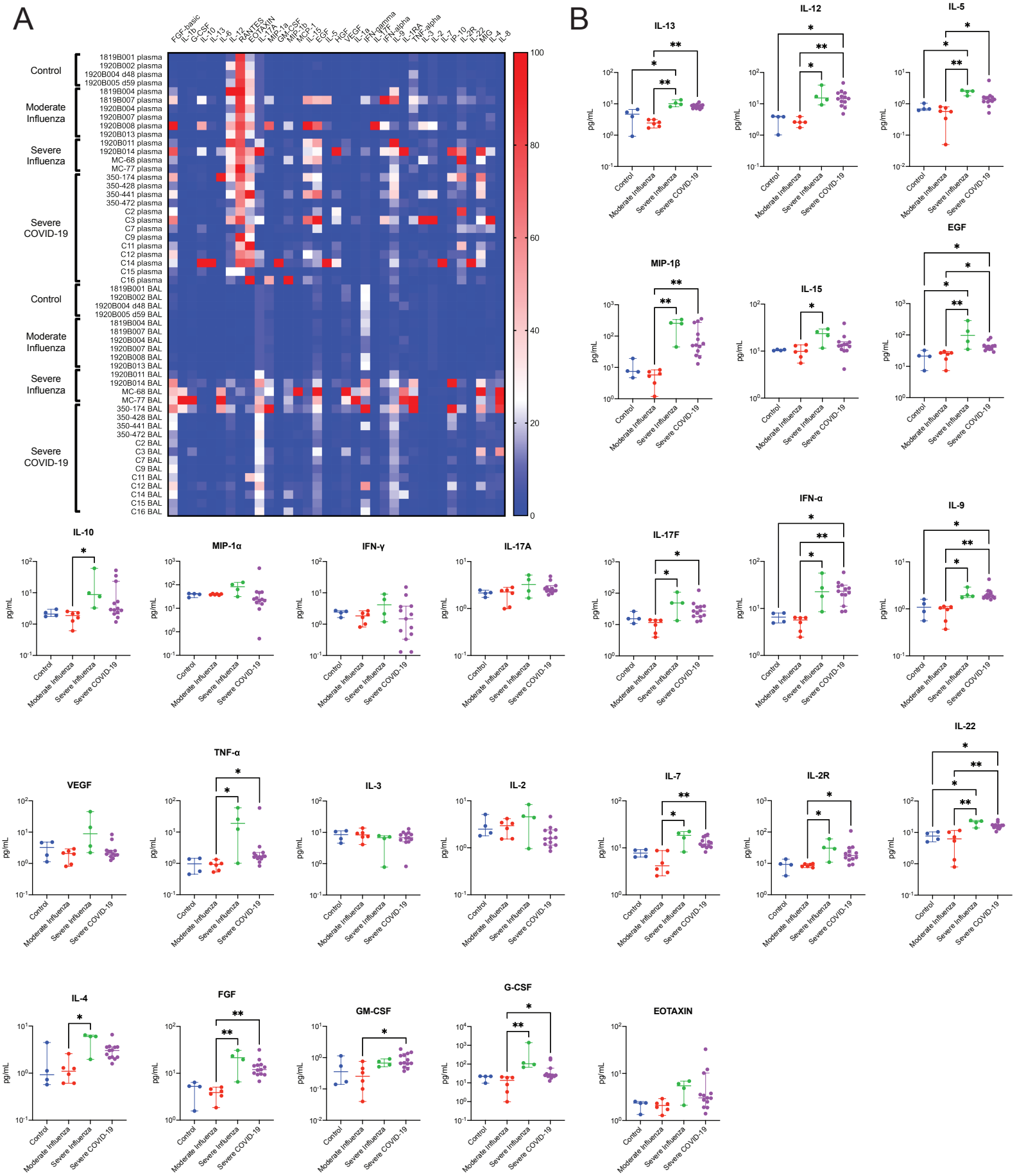
Supplementary Figure 1



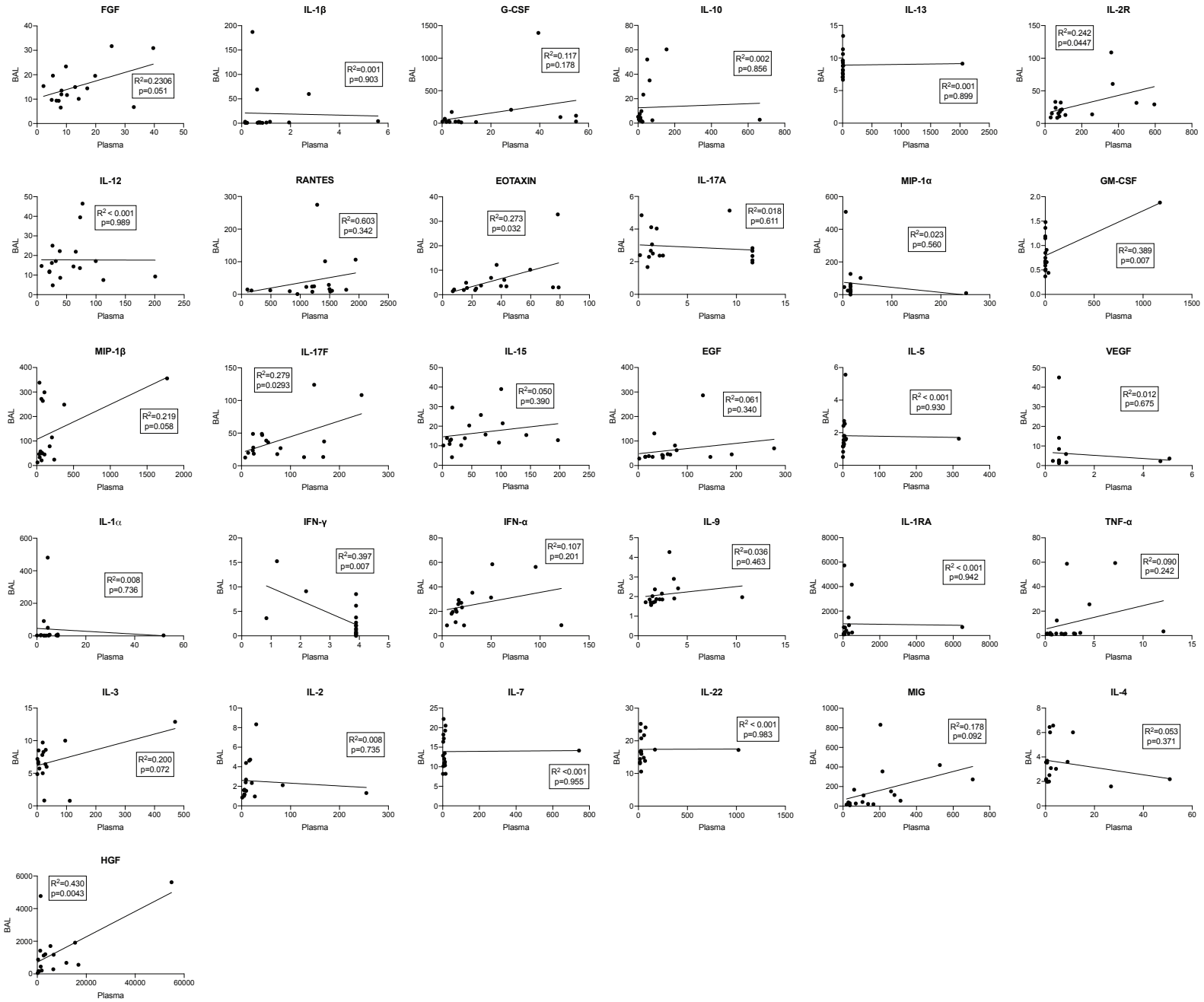
Supplementary Figure 1. Flow cytometry gating strategy and representative flow cytometry plots of BAL sample obtained from 350-428 at day 11 after symptom onset. (A) We quantified the absolute number of cells per mm^3 of BAL fluid by adding 1,000 Precision Count Beads per mm^3 to 0.1 mL of the uncentrifuged BAL fluid taken directly from the sample we received from the clinical team. We then analyzed this small portion of the total sample via flow cytometry as described in the materials and methods and quantified the absolute number of $CD45^+$ cells, $CD3^+$ cells, $CD4^+$ T cells and $CD8^+$ T cells in 50 mm^3 of BAL fluid. (B) In a separate experiment with a much larger number of fresh centrifuge-separated total BAL cells, we examined the proportion of all other subsets using the strategy shown. $CD19^+$ cells were infrequent in the BAL and $CD14^+$ cells were not well-separated from other subsets in our Precision Count Bead experiment. Therefore, we calculated the absolute number of $CD19^+$ B cells and $CD14^+$ cells as well as all subsets of B cells and monocytic-lineage cells by determining the frequency of each of these subsets in terms of total $CD45^+$ cells in the second experiment and then calculating the number of these cells from the known absolute number of $CD45^+$ cells in the Precision Count Bead experiment.

Supplementary Figure 2



Supplementary Figure 2. Measured cytokine concentrations in all subjects. (A) Heat map visualization of cytokine concentrations in both the plasma and BAL. Plasma values are the top half of the heat map, BAL values are the bottom. Each individual column was normalized and the highest cytokine value set to 100 and the lowest to 0. (B) BAL cytokine concentrations for the remaining 25 measured cytokines not presented in Figure 3. Individual subject values are plotted (each point) along with the median group value (line) and the 95% confidence interval. Significance is indicated by * P<0.05 and ** P<0.005, with all testing performed using Kruskal-Wallis ANOVA with Dunn's multiple comparisons post-test.

Supplementary Figure 3



Supplementary Figure 3. Linear regression analysis for the remaining 31 cytokines not presented in Figure 4A. Plots represent blood plasma concentration on the x-axis and BAL concentration on the y-axis. All cytokine concentration units reported are in pg/mL. This analysis was performed using the initial sample from each of the individuals with severe COVID-19 and severe influenza (N=17). The P value threshold for significance was corrected to < 0.0015 using the Bonferroni method.