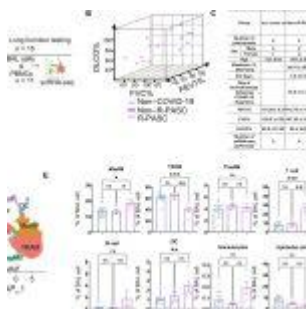
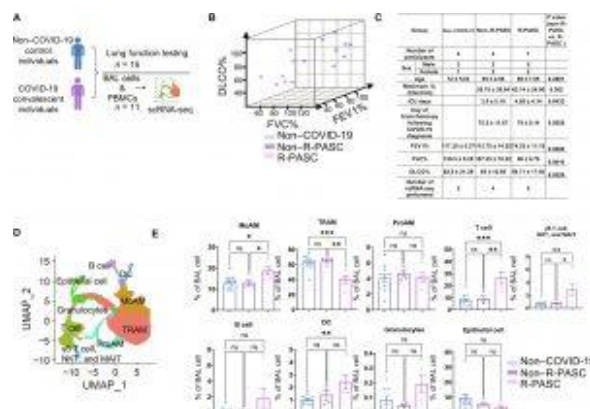


# A Potential Breakthrough in Long COVID Treatment



A new study has uncovered a potential root cause of respiratory symptoms in [Long COVID](#) and a promising avenue for treatment (Figure 1). Researchers have discovered that COVID-19 infection can trigger persistent inflammation in lung tissue, leading to long-term respiratory issues.



**Figure 1: Lung function status and BAL cell type components are altered in R-PASC.** (A) Experimental workflow: Lung function parameters were tested on non-COVID-19 or COVID-19 convalescent individuals ( $N = 15$ ), and scRNA-seq was performed on PBMCs and BAL cells from donors ( $N = 11$ ). (B) Three-dimensional

*distributions of lung function. (C) Summary of donor's clinical data during the acute phase and lung function results during sampling at the indicated day after COVID-19 diagnosis. (D) Uniform Manifold Approximation and Projection (UMAP) plot showing integrated BAL cells. (E) Bar graphs showing the proportion of indicated cell types in BAL cells among each group. MoAM, monocyte-derived alveolar macrophage; TRAM, tissue-resident macrophage; ProAM, proliferating alveolar macrophage. Data are represented by means  $\pm$  SEM or individual samples. Significance was tested by t test (C) or one-way ANOVA with Tukey's adjustment (E); ns, not significant; \* $P < 0.05$ , \*\* $P < 0.01$ , and \*\*\* $P < 0.001$ .*

The study revealed that immune cells within the lungs undergo [significant changes following COVID-19 infection](#). Macrophages, responsible for inflammation and tissue repair, become overactive, promoting lung scarring. Simultaneously, T cells release excessive interferon, a signalling molecule that sustains inflammation. This ongoing inflammatory response is believed to underlie the persistent respiratory symptoms experienced by many long COVID patients.

The researchers propose that existing anti-inflammatory drugs, such as baricitinib, used to treat rheumatoid arthritis, could potentially halt this chronic inflammation. These drugs have previously demonstrated efficacy in managing severe COVID-19 infections and may offer a repurposing opportunity for [long COVID treatment](#).

This research marks a significant step forward in understanding the complexities of long COVID. By identifying specific cellular mechanisms driving the condition, scientists can now focus on targeted [therapeutic interventions](#). While further research is necessary, the findings offer hope for millions of people suffering from the debilitating effects of long COVID.

**Journal article: Li, C., et al., 2024. [Comparative single-cell analysis reveals IFN- \$\gamma\$  as a driver of respiratory sequelae after acute COVID-19](#). *Science Translational Medicine*.**

*Summary by Stefan Botha*