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Korea offers new insights into lung damage during COVID-19Ã¢â?¬â?[1]

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For understanding dynamic changes in immune responses to COVID-19



An immunology research team at the Korea Advanced Institute of Science and Technology (KAIST) has found that a specific subtype of macrophages that originated from blood monocytes plays a key role in the hyper-inflammatory response in SARS-CoV-2 infected lungs, by performing single-cell RNA sequencing of bronchoalveolar lavage fluid cells.

This study provides new insights for understanding dynamic changes in immune responses to COVID-19.

In the early phase of COVID-19, SARS-CoV-2 infected lung tissue and the immediate defense system is activated. This early and fast response is called ‘innate immunity,’ provided by immune cells residing in lungs.

Macrophages are major cell types of the innate immune system of the lungs, and newly differentiated macrophages originating from the bloodstream also contribute to early defenses against viruses.

Professor Su-Hyung Park and his collaborators investigated the quantitative and qualitative evaluation of immune responses in the lungs of SARS-CoV-2 infected ferrets.

To overcome the limitations of research using patient-originated specimens, the researchers used a ferret infection model to obtain SARS-CoV-2 infected lungs sequentially with a defined time interval.

Currently, the research team is conducting a follow-up study to identify the dynamic changes in immune responses during the use of immunosuppressive agents to control hyper-inflammatory response called ‘cytokine storm’ in patients with COVID-19.