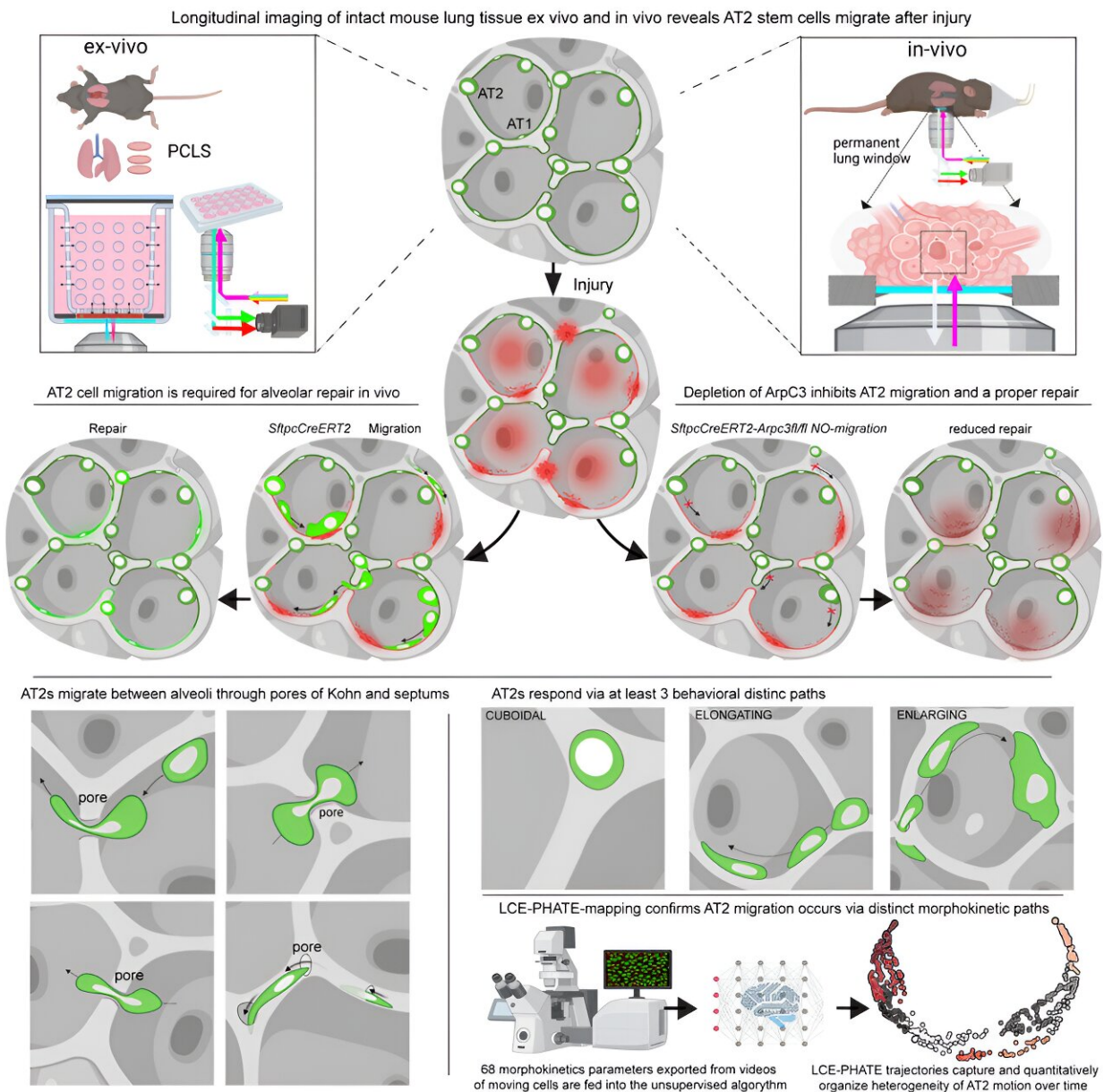


Stem cells 'migrate' to repair damaged lung cells, study shows

February 22 2024, by Bill Hathaway



Credit: *Developmental Cell* (2024). DOI: 10.1016/j.devcel.2024.02.003

A new Yale-led study has found that stem cells migrate to help repair damaged lung cells caused by injuries such as viral or bacterial infections.

The findings were [published](#) Feb. 19 in the journal *Developmental Cell*.

"This is an exciting new insight into [stem cell biology](#)," said Maurizio Chioccioli, assistant professor of genetics and comparative medicine at Yale School of Medicine and corresponding author of the paper.

For the study, the researchers looked at the two main cell types that make up the [alveolar](#) epithelium in living [mice](#). Alveolar epithelial type 1 cells, which line lung tissues, are crucial to the exchange of oxygen and carbon dioxide gases. And alveolar type 2 cells or (AT2s) are known to act as [stem cells](#) to replenish those injured or dead epithelial cells in the alveoli, or air sacs, in the lung. It was unknown exactly how the AT2s accomplished this feat.

Using advanced timelapse imaging techniques and genetic mouse models, the research team was able to track the fate of individual AT2s in the live breathing intact lung in response to injury. They were able to show for the first time that a large fraction of alveolar stem cells (AT2s) migrate to the site of the injury.

This behavior is important in the regeneration of alveoli, the air sacks that function as the site of gas exchange in the lung, the researchers say.

"The results demonstrate that stem cell migration between individual functional units is an important driver of tissue regeneration in the

mammalian lung," Chioccioli said.

More information: Maurizio Chioccioli et al, Stem cell migration drives lung repair in living mice, *Developmental Cell* (2024). [DOI: 10.1016/j.devcel.2024.02.003](https://doi.org/10.1016/j.devcel.2024.02.003)

Provided by Yale University

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