

# Organ signal find raises hopes of immune disorder treatments

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The discovery of key signals that help tissues repair after injury could pave the way for new treatments for asthma and organ scarring, a study suggests.

Scientists have identified two molecules that enhance the body's immune response inside [vital organs](#), helping to fight off parasitic worm infections and repair damaged tissues.

Identifying these signals could help researchers develop new ways of treating diseases in which [tissue](#) repair is intensified, such as asthma and organ scarring - known as fibrosis.

Fibrosis is the underlying cause of many fatal diseases of the heart, lung, liver and kidney, as well as disability associated with ageing, researchers say.

The [molecules](#) are part of a set of immune signals and cells - known as the type 2 immune response. If not properly regulated, the response can overreact, triggering these conditions.

Researchers at the University of Edinburgh found that specific signals in the lungs and liver enhance the [tissue repair response](#) of mice infected with parasitic worms and bacteria.

In the lungs, a molecule called surfactant protein A was found to amplify the type 2 [immune response](#) while, in the liver, this role is carried out by

a different molecule - known as C1q.

By understanding how the immune responses that help repair tissues are controlled in different organs, researchers say it may be possible to better target therapies.

The study, published in the journal *Science*, was carried out with the University of Manchester and Complutense University of Madrid.

Dr Carlos Minutti, of the University of Edinburgh's School of Biological Sciences, said: "Our findings will aid in the development of new approaches to control diseases caused by exaggerated repair responses, such as asthma, fibrosis and perhaps even cancer. By targeting local signals the treatment can be restricted to the damaged organ, reducing side effects."

**More information:** "Local amplifiers of IL-4R $\alpha$ -mediated macrophage activation promote repair in lung and liver", *Science* (2017). [science.sciencemag.org/lookup/.../1126/science.aaj2067](https://science.sciencemag.org/lookup/.../1126/science.aaj2067)

Provided by University of Edinburgh

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