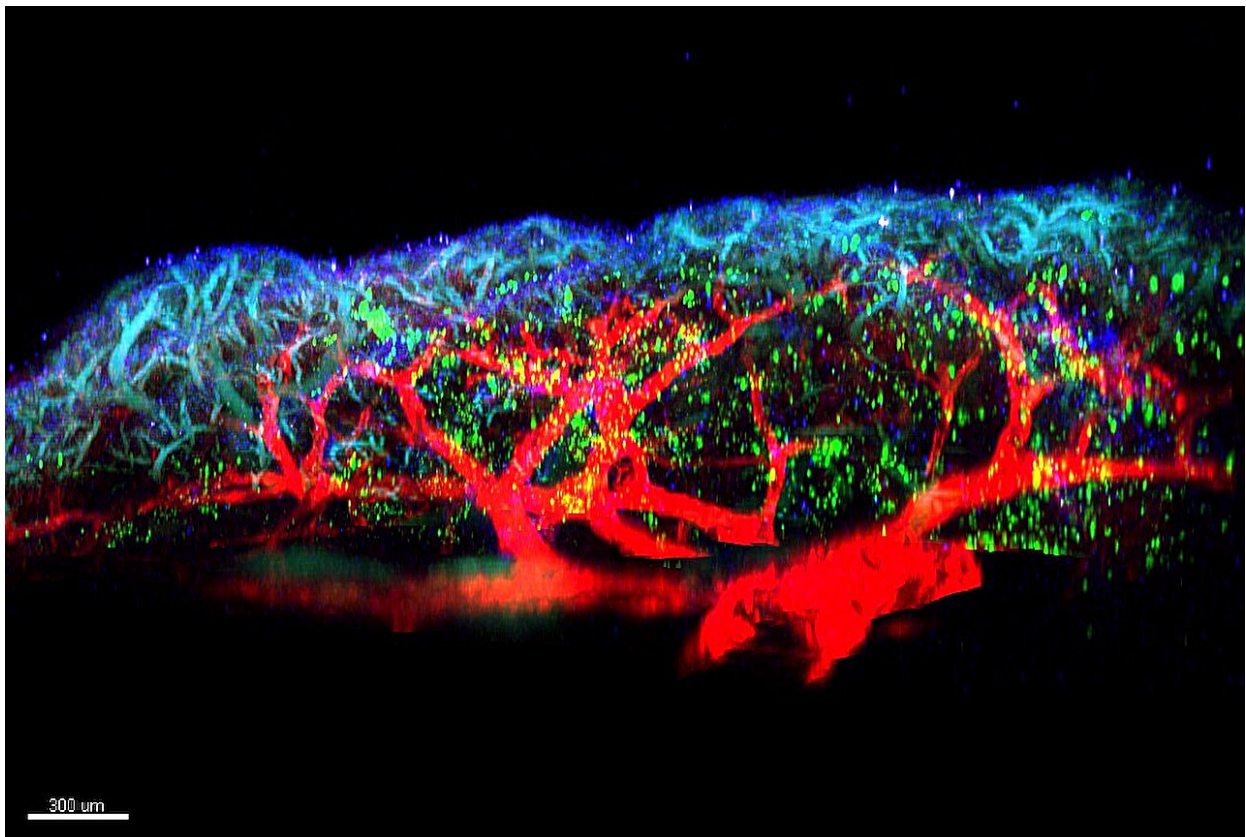


# Respiratory allergies: Newly discovered molecule plays a major role in triggering inflammation

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Microscopic visualization of immune cells (in green) activated by the alarmins TL1A and interleukin-33 during the onset of allergic inflammation in the lungs. ILC2s immune cells produce large quantities of interleukin-9, a key mediator of allergic inflammation. They are located near collagen fibers (blue) and blood vessels in the lung (red). Credit: Jean-Philippe GIRARD—IPBS (CNRS/UT3 Paul Sabatier)

The inflammation process plays a crucial role in allergic respiratory diseases, such as asthma and allergic rhinitis. Although the pulmonary epithelium, the carpet of cells that forms the inner surface of the lungs, is recognized as a major player in the respiratory inflammation that causes these diseases, the underlying mechanisms are still poorly understood.

A research team has identified one of the molecules responsible for triggering these [allergic reactions](#), in a study co-led by two CNRS and Inserm scientists working at l'Institut de pharmacologie et de biologie structural (CNRS/Université Toulouse III—Paul Sabatier). The study is [published](#) in the *Journal of Experimental Medicine*.

This molecule from the alarmin family, named TL1A, is released by lung epithelium cells a few minutes after exposure to a mold-type allergen. It cooperates with another alarmin, interleukin-33, to alert the [immune system](#). This double alarm signal stimulates the activity of immune cells, triggering a cascade of reactions responsible for allergic inflammation.

Alarmins, therefore, constitute major therapeutic targets for the treatment of respiratory allergic diseases. In a few years' time, treatments based on [antibodies](#) blocking the TL1A alarmin could benefit patients suffering from severe asthma or other allergic diseases.

In France, at least 17 million people are affected by allergic diseases with the most severe forms of asthma being responsible for several hundred deaths every year.

**More information:** Pauline Schmitt et al, TL1A is an epithelial alarmin that cooperates with IL-33 for initiation of allergic airway inflammation, *Journal of Experimental Medicine* (2024). [DOI: 10.1084/jem.20231236](https://doi.org/10.1084/jem.20231236)

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