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News Release

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Newly found immune defence could pave way to treat allergies

Scientists have made a fundamental discovery about how our body's immune system clears harmful infections.

Researchers have identified a previously unknown mechanism by which the responses of key cells of the immune system are regulated.

The finding could inform research into improved treatments for allergies or chronic inflammatory diseases, such as lung and liver fibrosis, researchers say.

Scientists at the University of Edinburgh made the discovery by studying how the immune system in mice fights off parasitic worms. These parasites provoke a strong immune response, enabling researchers to carry out in-depth studies of the defence mechanisms involved.

They found that chemical signals from infecting organisms activate cells – called Th2 cells – causing them to multiply and express a key protein, known as EGFR.

The cells then migrate from the lymph nodes – where they are stored – to the site of infection, where they release defence proteins to expel the parasites.

Researchers found that Th2 cells release defence molecules when they detect the damage caused by invading parasites, but can only perform this task if they express EGFR.

This safety mechanism – unknown until now – blocks the release of defence molecules in the absence of parasites, and thereby prevents tissue damage, the team says.

The study, published in the journal *Immunity*, was funded by the Medical Research Council, European Union and Austrian Science Fund. It was carried out in collaboration with other scientists from the UK, Germany, Ireland, Austria and The Netherlands.

Dr Dietmar Zaiss, of the University of Edinburgh's School of Biological Sciences, who led the study, said: "We found an entirely new mechanism by which immune responses against parasites are regulated. These findings give us fresh insight into the functioning of local immune responses and should allow us to develop better vaccines against parasite infections."

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