

# Gene discovery helps explain how flu can cause severe infections

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Scientists have discovered a new gene in the influenza virus that helps the virus control the body's response to infection.

Although this control is exerted by the [virus](#), surprisingly it reduces the impact of the infection.

The findings will help researchers better understand how flu can cause severe infections, as well as inform research into new treatments.

Researchers found when the virus gene – called PA-X – was active, mice infected with flu subsequently recovered.

When the PA-X gene did not work properly, the immune system was found to overreact. This made the infection worse, and did not help destroy the virus any quicker.

The study looked at how the gene affected the behaviour of "Spanish flu", a virulent strain of [influenza](#) that caused a pandemic in 1918.

It was carried out by the Universities of Cambridge, Cork, Edinburgh and Utah, the Institute of Systems Biology in Seattle and the United States National Institutes of Health.

Scientists discovered the PA-X gene some 30 years after flu genome was first decoded.

Professor Paul Digard, of The Roslin Institute at the University of Edinburgh, said: "Just finding this gene in the first place is important, but the find is even more significant because of the role it seems to play in the body's response to flu."

The researchers, whose study is published online in the journal *Science*, found the hidden gene by analysing patterns of changes in the genetic information of thousands of different flu strains.

Dr Andrew Firth, of the University of Cambridge, said: "The [flu](#) virus has a very, very small genome - just 12 [genes](#). Finding a new gene makes a pretty significant change to our understanding of this virus."

**More information:** "In Influenza A Virus Segment 3 Modulates the Host Response," by B.W. Jagger et al., *Science*, 2012.

Provided by University of Edinburgh

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