

# Study identifies immune regulator as critical contributor to stomach cancer development

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L-R: Professor Brendan Jenkins, Dr Ruby Dawson. Credit: Hudson Institute of Medical Research

Researchers aim to beat stomach cancer at its own game by identifying modulators of the innate immune system that drive it and applying the brakes before cancer takes hold. In 2021, Professor Brendan Jenkins and Dr. Ruby Dawson challenged conventional thinking about how stomach cancer forms—the answers have created a paradigm shift in scientific thinking around how the immune system contributes to the development of stomach cancer.

Stomach cancer is the third most lethal cancer worldwide, with a five-year survival rate of less than 30 percent.

Most stomach cancers are caused by uncontrolled activation of two arms of the [immune system](#): the innate or first line of defense, and the adaptive or slower specific immune response. To date, scientists have focused on adaptive immune-based pathways and treatments, but these have yielded limited clinical results.

"To find new treatments we must identify new immune system genes to target, so we looked outside the box at the underexplored innate immune system," says Prof Jenkins.

The team's discovery, published in *Gut*, identified a critical contributor to [stomach cancer](#) development, namely the underexplored innate immune system protein, AIM2.

"This is a substantial advance in the [molecular mechanisms](#) underlying stomach cancer, offering [enormous potential](#) to dramatically improve treatments and stomach cancer survival," said Professor Brendan Jenkins.

"If you think of a cell as a finely tuned orchestra with instruments

playing in harmony and taking cues from each other, we discovered that AIM2 is playing way too loud. This causes chaos that triggers cancer in the cell. We aim to restore the harmony," says Dr. Dawson.

"Targeting immune regulators like AIM2 and potentially other related immune system regulators is an untapped strategy; it gives scientists new targets to use for drugs and the potential for a clearer picture of a patient's prognosis," says Prof Jenkins.

The discovery provides a major advance in the fundamental understanding of the molecular mechanisms governing stomach [cancer](#) and has the potential to influence future clinical management and dramatically improve patient outcomes.

**More information:** Ruby E Dawson et al, STAT3-mediated upregulation of the AIM2 DNA sensor links innate immunity with cell migration to promote epithelial tumourigenesis, *Gut* (2021). [DOI: 10.1136/gutjnl-2020-323916](#)

Provided by Hudson Institute of Medical Research

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