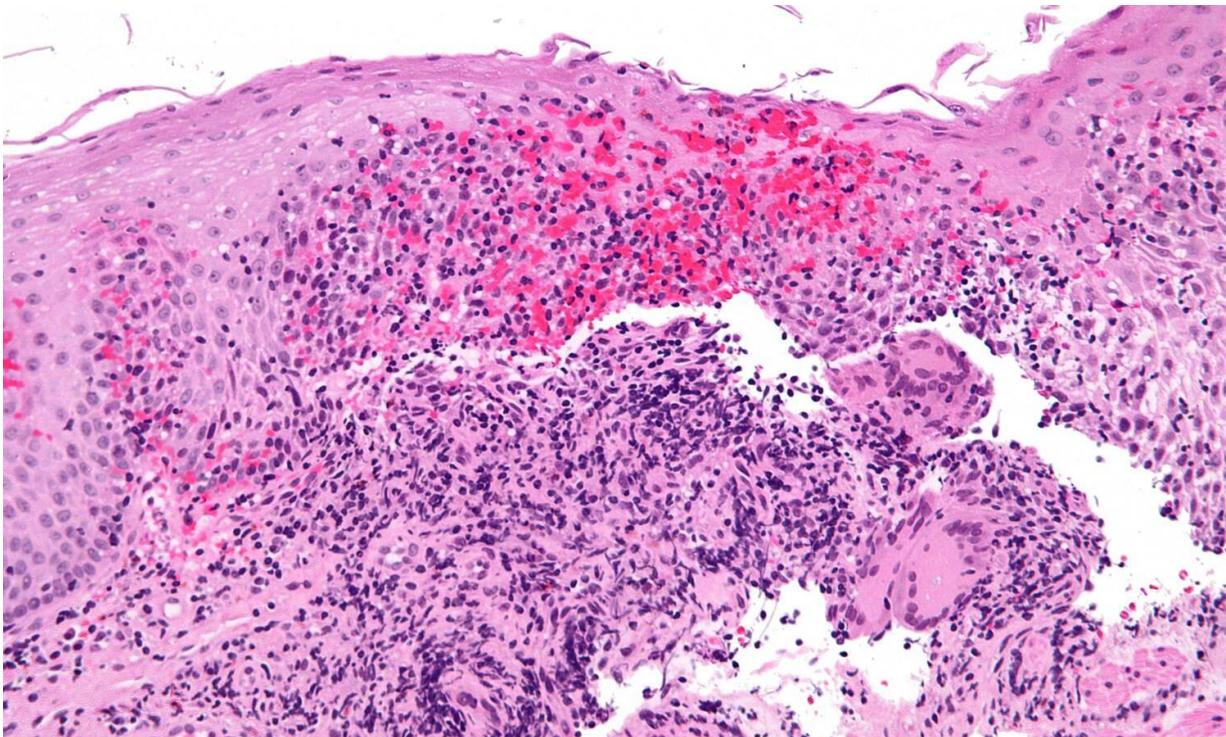


# Discovery of potent parasite protein may lead to new therapeutic options for inflammatory bowel conditions

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High magnification micrograph of Crohn's disease. Biopsy of esophagus. H&E stain. Credit: Nephron/Wikipedia

A single protein from a worm parasite may one day offer new therapeutic options for treating inflammatory bowel diseases like

Crohn's or Ulcerative Colitis, that avoid the potentially serious side effects of current immunosuppressant medications.

The study, published today in *Nature Communications*, demonstrates the discovery of a distinct new worm protein which mimics a cytokine found in humans, known as transforming growth factor-beta (TGF- $\beta$ ).

The newly-discovered protein switches off inflammation by inducing "regulatory T cells", the body's own means of dampening excessive reactivity.

The "Hygiene Hypothesis" suggests that some bugs and parasites may protect you from an overly-reactive immune system, which can cause allergy and other disorders. Harnessing this route of immune regulation is potentially a much safer option than our currently-available medications can offer.

First author Dr Danielle Smyth, Research Associate in Parasitology at the Institute of Infection, Immunity and Inflammation, said:

"Discovering a new protein that can potently induce regulatory T cells (Tregs) from [human cells](#) is unexpected and very exciting in terms of finding a new potential biologic for inflammation conditions."

Inflammatory bowel diseases are made up of many variations, and each patient requires to be treated in an individual manner. As such, treatment approaches are being explored such as T cell therapy (taking a patient's T cells and converting them to Tregs and giving them back to the patient).

Dr Smyth added: "We hope to explore this option and see whether the Tregs our parasite molecule induce offer a regulatory advantage over current treatments."

Rick Maizels, Professor of Parasitology at the Institute, said: "The next

horizon for these exciting findings will be to test whether the new [protein](#) can be used to treat inflammatory diseases, reaping the benefits of the 'hygiene hypothesis' and dispensing with the [parasites](#) themselves."

The paper, 'A structurally distinct TGF- $\beta$  mimic from an intestinal helminth parasite potently induces regulatory T cells' is published in *Nature Communications*.

**More information:** Chris J. C. Johnston et al. A structurally distinct TGF- $\beta$  mimic from an intestinal helminth parasite potently induces regulatory T cells, *Nature Communications* (2017). [DOI: 10.1038/s41467-017-01886-6](#)

Provided by University of Glasgow

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