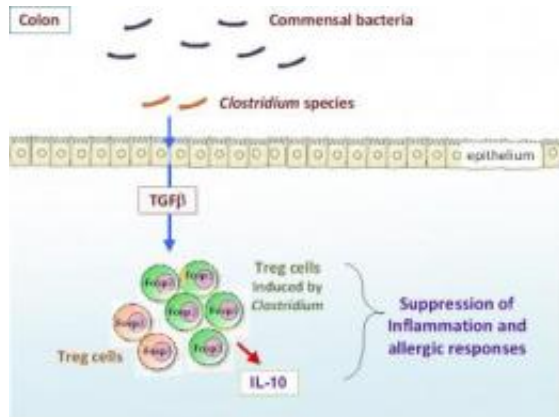


One bacterium brings on the T cells

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Clostridium species indigenous to the murine colon stimulate intestinal epithelial cells to produce TGF- β , resulting in the accumulation of Foxp3-expressing Treg cells and their IL-10 production in the colon, which contributes to suppression of unfavorable inflammations and allergic responses. Credit: Science/ AAAS

How exactly do the countless microbes that call our bodies "home" help us to maintain healthy immune systems?

A new study with mice, published last week in *Science*, has shown that specific bacteria of the genus *Clostridium* promote the generation of [regulatory T cells](#), or Treg cells, in the mouse colon -- a discovery that suggests new therapeutic approaches to allergies and autoimmunity.

Koji Atarashi and colleagues first eliminated all the bacteria from the colons of mice and found that populations of colonic Treg cells plummeted.

By dosing those bacteria-free mice with a certain mix of *Clostridium* strains, the researchers observed a return of those Treg cells to the colon.

The researchers also found that feeding wild-type mice (with all their commensal bacteria intact) the *Clostridium* bacteria produced elevated levels of Treg cells in the mice and helped the rodents to ward off autoimmune [colitis](#) and other allergies.

These data highlight how these particular *Clostridium* bacteria help to regulate specific immune cell populations, and in the future the findings might even be used to improve treatment for certain [autoimmune diseases](#).

More information: "Induction of colonic regulatory T cells by indigenous *Clostridium* species," by K. Atarashi et al., *Science*, January 2010.

Provided by AAAS

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