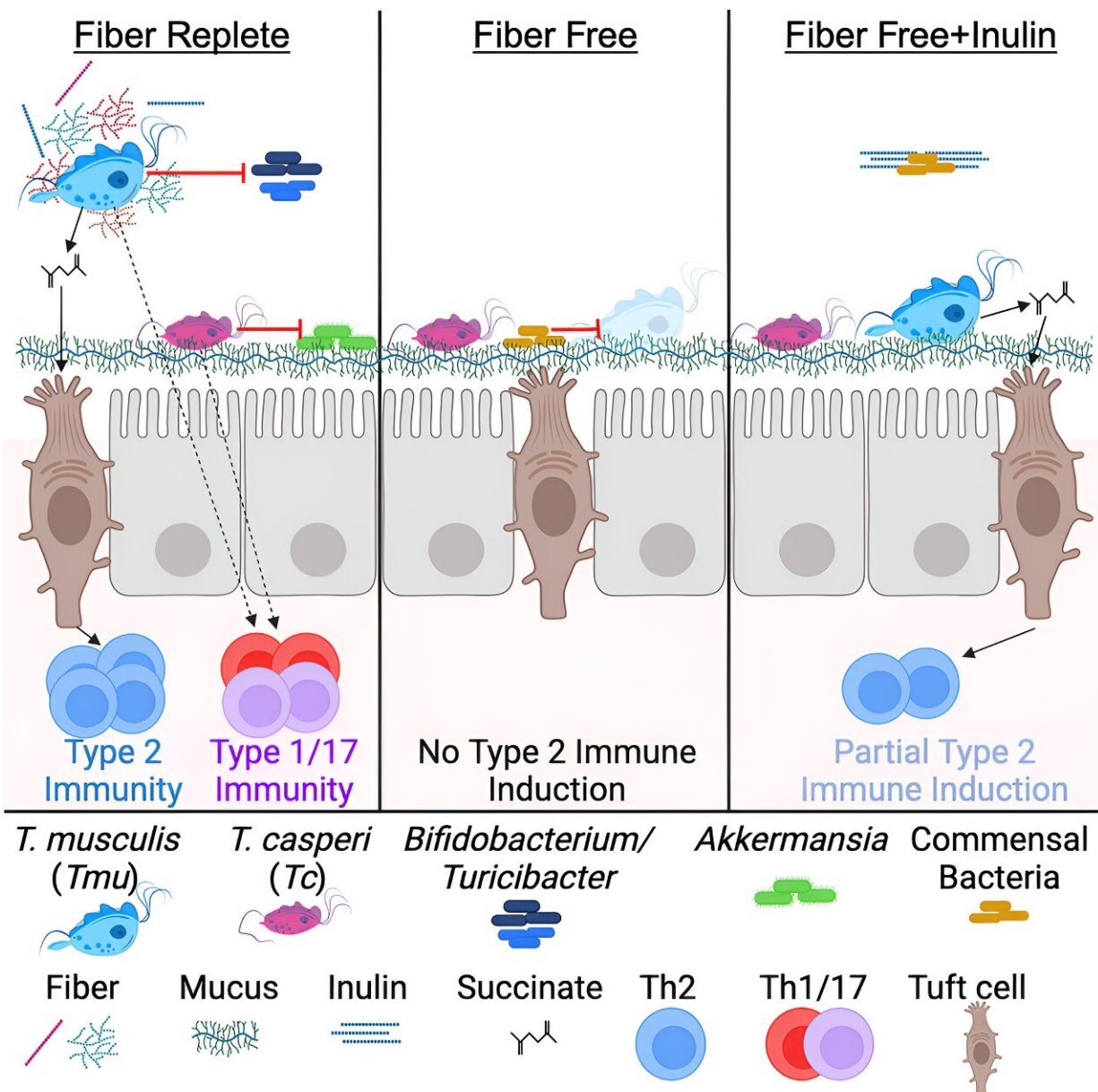


Researchers find large diversity of protists in the Parabasalia phylum in both mice and humans

December 29 2023, by Bob Yirka



Credit: *Cell* (2023). DOI: 10.1016/j.cell.2023.11.018

A team of pathologists, geneticists, immunologists and engineers at the Stanford University School of Medicine, has found a previously unrecognized diversity of protists in the Parabasalia phylum in both mice and humans. In their paper [published](#) on the open-access site of the journal *Cell*, the group describes their study of the differences between species of protists living in the guts of mice and humans.

Protists, are a type of single-celled microorganism. Prior research has shown that they coexist in the gut of many creatures—including humans and [mice](#)—with bacteria, fungi and other microbes. But as the researchers with this new effort point out, compared to other microbes in the gut, protists have been little studied. One thing that has been learned about them is that they can instigate an [immune response](#) in the part of the gut in which they reside—such as the small intestine.

To learn more about protist diversity in the [mouse](#) gut, the research team collected fecal samples of lab mice and screened them for different types of protists. They identified a previously unknown species similar to *Tritrichomonas musculus*, a protozoa found in the mouse gut that is known to instigate a type II immunity reaction—they named it *Tritrichomonas casperi*. In looking at its DNA, they found that it was a close relative of two types of species that reside in the human gut.

By conducting experiments with the newly discovered [species](#), they found that it had the means to set off production of T_H1 and T_H17 cells, but it did not excrete succinate, making it the only known gut protists identified by the researchers not capable of instigating a type II immune

reaction in the mouse small intestine. They also found that *T. casperi* tended to consume intestinal mucus, rather than the food ingested by its mouse host, and that mice that had *T. casperi* in their guts had lower numbers of mucus-consuming bacteria in the same gut area, suggesting that it was capable of outcompeting them.

The researchers claim their work shows that protists play much more than a secondary role in gut biome activity, and they suggest that more research needs to be done to learn more about their impact on overall gut activity.

More information: Elias R. Gerrick et al, Metabolic diversity in commensal protists regulates intestinal immunity and trans-kingdom competition, *Cell* (2023). [DOI: 10.1016/j.cell.2023.11.018](https://doi.org/10.1016/j.cell.2023.11.018)

© 2023 Science X Network

Citation: Researchers find large diversity of protists in the Parabasalia phylum in both mice and humans (2023, December 29) retrieved 27 April 2024 from <https://phys.org/news/2023-12-large-diversity-protists-parabasalia-phylum.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.