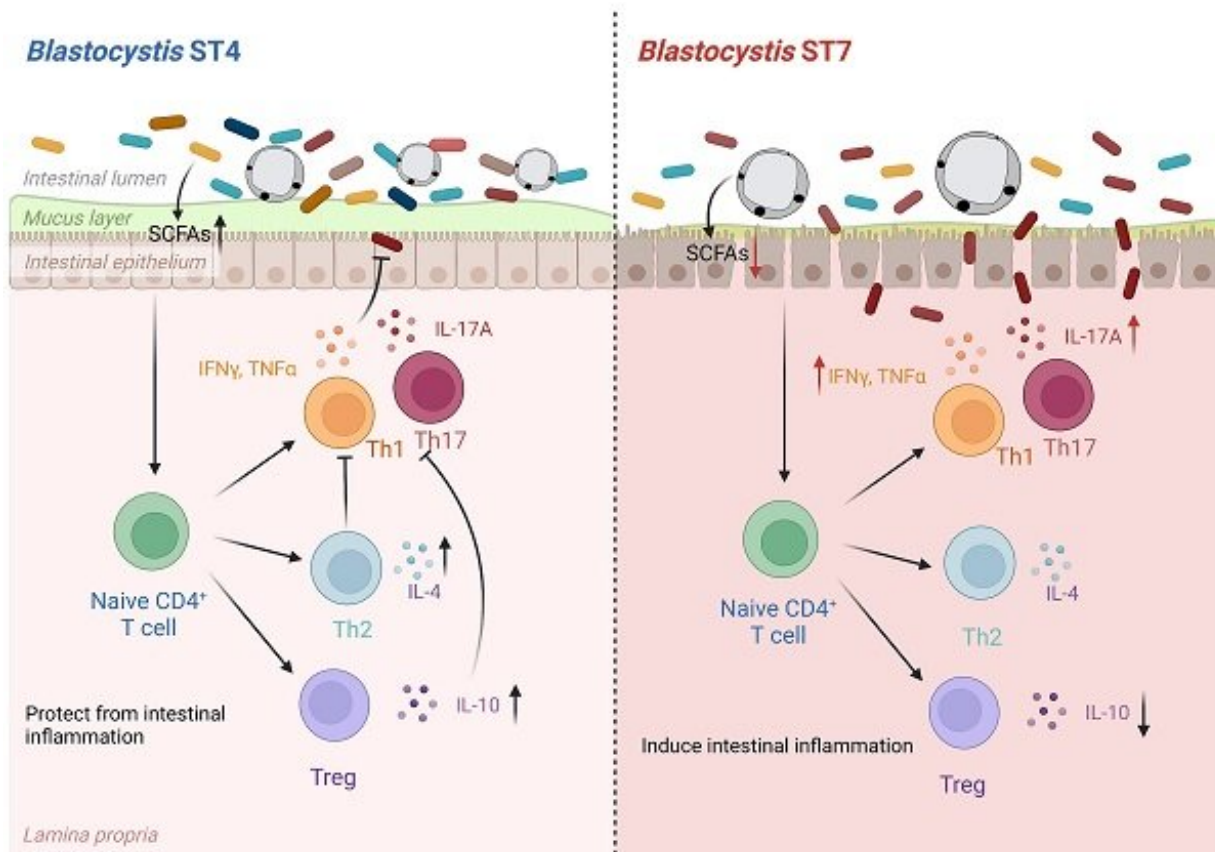


Researchers find differential impacts of Blastocystis strains on gut health

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Graphical abstract. Credit: *Theranostics* (2023). DOI: 10.7150/thno.81583

The gut microbiota contains trillions of bacteria that can promote health or cause disease under different conditions. The collective DNA sequences that make up the bacteria flora, is called the microbiome.

A diverse microbiome is usually accepted as an indicator of a healthy state of the gut, as it has a greater capacity for regulating health and combating diseases, while a less diverse one can cause conditions like inflammation disorders, [irritable bowel syndrome](#), stomach cramps, bloating, diarrhea, and constipation. However, the factors that contribute to a diverse or disrupted microbiome, are not well understood.

A team of researchers led by Associate Professor Kevin Tan from the Department of Microbiology and Immunology at the Yong Loo Lin School of Medicine, National University of Singapore (NUS Medicine) has identified an organism, Blastocystis, which is able to promote or disrupt a healthy bacterial gut profile, depending on the strain. Blastocystis is a common parasite that inhabits the gastrointestinal tracts of humans. The study is published in *Theranostics*.

In the study, the researchers investigated two strains of Blastocystis, ST4 and ST7, and whether they prevent or worsen [intestinal disease](#), through studying their impact on intestinal microbiota, metabolism, and host immune responses.

Blastocystis ST7 is a common gut microbe found in Singapore and the Southeast Asian region. The study showed that when primed with ST7, the strain decreased microbiome diversity and promoted gut inflammation in laboratory models.

However, when the models were primed with Blastocystis ST4, a strain more commonly found in Europe and the U.S., the models developed a healthy [gut microbiome](#) and were protected from gut inflammation.

This study suggests that the same organism can have strikingly different effects, depending on its strain and geographical prevalence. Clinically, the identification of Blastocystis in patients in Southeast Asia, as compared to those in Europe and U.S., may have different implications

for treatment.

"We are currently investigating if Blastocystis ST4 has therapeutic potential against immunological diseases, and are concurrently pursuing studies to define the ways the different strains affect the gut [microbiome](#)," said Associate Professor Tan.

More information: Colonization with two different Blastocystis subtypes in DSS-induced colitis mice is associated with strikingly different microbiome and pathological features, *Theranostics* (2023). DOI: [10.7150/thno.81583](https://doi.org/10.7150/thno.81583). www.thno.org/v13p1165.htm

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