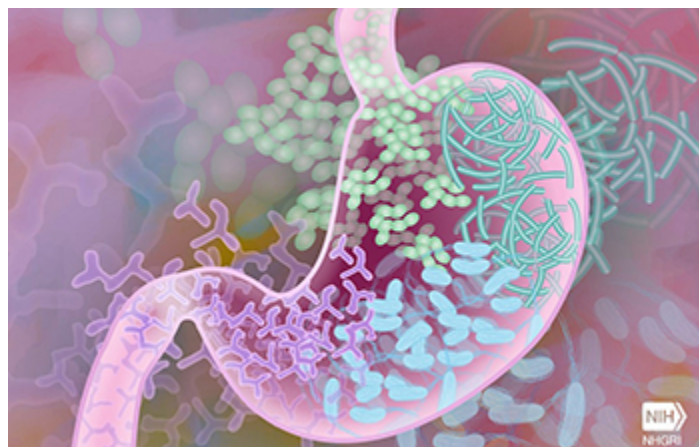




Research News

New findings reveal how microbiome is disrupted during disease flare-ups

Results may lead to new therapies for inflammatory bowel diseases



The microbiome is disrupted in inflammatory bowel diseases.

[Credit and Larger Version \(/discoveries/disc_images.jsp?cntn_id=298666&org=NSF\)](/discoveries/disc_images.jsp?cntn_id=298666&org=NSF)

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A study led by researchers from the Harvard T.H. Chan School of Public Health and the Broad Institute of MIT and Harvard is the first to observe the complex set of biochemical and molecular events that disrupt the microbiome and trigger immune responses during flare-ups of inflammatory bowel diseases, including Crohn's disease and ulcerative colitis.

The findings were published in the journal *Nature* ([/cgi-bin/good-bye?https://www.nature.com/articles/s41586-019-1237-9](https://www.nature.com/articles/s41586-019-1237-9)), with the research funded in part by NSF's [Division of Biological Infrastructure](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1053486&HistoricalAwards=false) [<https://www.nsf.gov/awardsearch/showAward?AWD_ID=1053486&HistoricalAwards=false>](https://www.nsf.gov/awardsearch/showAward?AWD_ID=1053486&HistoricalAwards=false).

While previous studies followed microbial changes during IBD, the scientists in this study developed a unique biotechnology toolbox to understand why microbiomes change in IBD and how this provokes an unhealthy inflammatory reaction. These tools allowed the researchers to track microbial chemical changes and human gene regulatory shifts, potentially leading to new therapies.

"The results pave the way for early detection of upcoming flares in disease activity -- which can then be aggressively treated -- and potentially for new biochemical therapeutic opportunities to encourage complete remission of IBD," said Curtis Huttenhower, a computational biologist at the Harvard Chan School and the

Broad Institute, and senior author of the study.

-- NSF Public Affairs, (703) 292-8070 media@nsf.gov (<mailto:media@nsf.gov>)

National Science Foundation, 2415 Eisenhower Avenue, Alexandria, Virginia 22314, USA Tel: (703) 292-5111, FIRS: (800) 877-8339 | TDD: (800) 281-8749