

Research team recognizes predator-producing bacteria

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Unique viruses called bacteriophages may play an important role in competition among bacterial strains, influencing the overall ecosystem of the human intestine, scientists at The University of Texas at Arlington and UT Southwestern Medical Center say.

A team led by Lora V. Hooper, an associate professor of immunology and microbiology at The University of Texas Southwestern Medical Center, and including UT Arlington assistant professor of biology Jorge Rodrigues examined the bacteriophages, or phages, produced by genetic information harbored in the chromosome of the mammalian gut bacterium *Enterococcus faecalis*. They found that a phage unique to *Enterococcus faecalis* strain V583 in mice acts as a predator, infecting and harming other similar, competing [bacterial strains](#). They believe these lab results suggest what goes on in the human intestine.

"This organism is using phage as a way to compete in your gut. If the phage is released and gets rid of all the other microbes, then strain V583 will have more nutrients available," Rodrigues said. "It opens up new questions about the role of phages in the gut system. Ultimately, you could use this as a technique to control bacteria in a natural way."

The findings were presented in October in the [Proceedings of the National Academy of Sciences](#) in a paper called, "A composite [bacteriophage](#) alters colonization by an intestinal commensal bacterium." It is available online here. Other co-authors were members of Hooper's lab: Breck A. Duerkop, Charmaine V. Clements and Darcy Rollins.

"Now that we've established the role of these bacteriophages, our team is working on trying to discover the specific triggers that lead to phage production in the gut," said Hooper, a Howard Hughes Medical Institute investigator. "We also

want to understand whether there are other phages that play a role in shaping the composition of gut [bacterial communities](#)."

Bacteria are abundant in the human gastrointestinal tract, and scientists are increasingly trying to understand their role in human health. Of those bacteria, *Enterococcus faecalis*, also known as *E. faecalis*, can constitute as much as 0.5 to 0.9 percent of gut microflora, according to the researchers. Outside of the [gut](#), *E. faecalis* can cause dangerous infections, such as endocarditis, and is often resistant to standard antibiotics like vancomycin.

Provided by University of Texas at Arlington

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