

Drugs from where?! Female genitals may be source of uniquely effective antibiotic

The [lack of new drugs, specifically antibiotics, in the drug development pipeline](#) of major pharmaceutical companies has drawn a lot of attention. While many of the antibiotics we still use were derived from the natural environment surrounding us, and then further in the lab, these sources have dried up as drug companies spend resources on more lucrative compounds that target chronic disease.

But a [study](#) from University of California San Francisco has found a natural antibiotic from an unexpected place: a vaginal bacteria.

To do this, scientists analyzed genes taken from the microbiome, the vast array of microbes that live on us and in us, to look for specific genes that make chemical products similar to known antibiotics. They found thousands that matched a type of antibiotic, called thiopeptides, that are currently under development by pharmaceutical companies.

When the team looked closer at these antibiotic-producing genes, hundreds were isolated to a vaginal bacteria called *Lactobacillus gasseri*. When the bacteria was grown in the lab, it produced thiopeptides that were able to kill off the *Staph bacteria*. The microbes in our guts and on our bodies are in constant competition with each other for resources, so it's not surprising that one bacteria would produce a chemical that kills off another.

[This is the first time, however, that scientists have been able to identify and culture an antibiotic from the human microbiome:](#)

“To my knowledge, this is the first work that isolates new compounds with strong drug potential from the human microbiome,” says Rob Knight, a microbial ecologist at the University of Colorado, Boulder. “This work provides an exciting platform for mining our microbiomes for new compounds of medical interest.”

The team plans to continue looking for antibiotic contenders in our microbial companions.

[Fecal transplants, which carry a generally higher yuck factor, already help recolonize the gut bacteria of people with severe *C.difficile* infections.](#) These patients can suffer from horrible diarrhea and abdominal pain for years, and many infections are resistant to available antibiotics. Some patients who receive fecal matter from a healthy person beat the infection as the healthy bacteria beat back the over-colonization of *C.difficile*.

As we look towards other sources to develop much needed antibiotics to beat back bad bacteria, the irony that the best contenders are living on and in us should not keep us from looking close to home.

Additional Resources:

- [New York Times, Science stumble in overstated reports on microbiome research](#), Genetic Literacy Project
- [Turning foe friendly: Domestication of infectious disease](#), Genetic Literacy Project

- [Bacterial genetics helps defeat antibiotic-resistant “super-bugs”](#), Genetic Literacy Project