

Bacteria that cleans sewage? Microbes have evolved to break down medications that we excrete

Worldwide, we consume more than 100 million kilograms of metformin a year. That's staggering.

All that metformin enters the body. But it also exits largely unchanged and ends up in our wastewater. The quantities found there are tiny—tens of micrograms per liter—and not likely to harm humans. But even small amounts can affect aquatic organisms that are literally swimming in it.

Lawrence Wackett, a biochemist at the University of Minnesota, got interested in this issue about a decade ago. Researchers had observed that at some wastewater treatment plants, the amount of metformin entering was much larger than the amount leaving. In 2022, Wackett's team and two other groups identified the bacteria responsible for metabolizing the drug and sequenced their genomes. But Wackett still wondered which genes were responsible.

Now he knows.

Follow the latest news and policy debates on sustainable agriculture, biomedicine, and other 'disruptive' innovations. Subscribe to our newsletter.

[SIGN UP](#)

[The study](#) was published in the *Proceedings of the National Academy of Sciences*. These proteins are produced by at least five species of bacteria found in wastewater sludge across three continents. But here's what struck me: This isn't a coincidence. These bacteria evolved the ability to metabolize metformin. They saw an opportunity to capitalize on the ubiquity of the drug in their environment, and they seized it. "This happens all the time," Wackett says. "Microbes adapt to the chemicals that we make."

[**This is an excerpt. Read the full article here**](#)