

# Your gut bacteria could affect your response to meds

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Ever wonder why a drug that works for someone else doesn't seem to

work for you? You might want to check your gut for the answer.

Gut [bacteria](#) that process more than 150 medicines have been pinpointed by researchers, who also identified genes that give the bacteria this ability.

The findings underline the role gut bacteria play in how well people respond to medications, according to the Yale University team.

"It is possible that we can use genes or [species of bacteria](#) to predict the capacity of an individual's [gut flora](#) to metabolize a certain [drug](#)," study co-lead author Maria Zimmermann-Kogadeeva said in a university news release.

"The work is a first step in identifying biomarkers that could help doctors prescribe the drugs that are the safest and most effective for individual patients," added Zimmermann-Kogadeeva. She's a postdoctoral fellow in the lab of senior study author Andrew Goodman, of Yale's Microbial Sciences Institute and the department of microbial pathogenesis.

For the new study, the researchers investigated whether and how 271 drugs are chemically modified by 76 kinds of gut bacteria. Nearly two-thirds of the drugs were metabolized by at least one of the bacteria species, the findings showed.

The researchers then identified many of the genes that enable the bacteria to metabolize the drugs.

The team found wide variations in the number of these genes in [healthy people](#). In some cases, these differences explain why some people's [gut bacteria](#) populations (microbiomes) metabolize drugs rapidly, while others act on the same drugs slowly or not at all.

It was once thought that drug metabolism was carried out only by organs, such as the liver, Goodman's team noted.

"We hope this study provides a useful first step in understanding the microbiome contribution to drug metabolism," co-lead author Michael Zimmermann said in the news release. He's a postdoctoral fellow in the Goodman lab.

"We think these approaches could shed light on how the [gut microbiome](#) also modulates our response to non-drug compounds, such as dietary nutrients and environmental agents," Zimmermann said.

The study was published June 3 in the journal *Nature*.

**More information:** Michael Zimmermann et al. Mapping human microbiome drug metabolism by gut bacteria and their genes, *Nature* (2019). [DOI: 10.1038/s41586-019-1291-3](https://doi.org/10.1038/s41586-019-1291-3)

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