

# Targeting gut bugs could revolutionize future drugs, say researcher

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Revolutionary new ways to tackle certain diseases could be provided by creating drugs which change the bugs in people's guts, according to a Perspective article published today in the journal *Nature Reviews Drug Discovery*.

Trillions of bugs known as gut microbes live symbiotically in the human gut. They play a key role in many of the processes that take place inside the body. Different people have different types of gut microbes living inside them and abnormalities in some types have recently been linked to diseases such as diabetes and obesity.

The authors of the Perspective argue that targeting gut microbes with new drug therapies, rather than concentrating on the mechanisms in the human body which are the current focus of most drug development programmes, could provide an array of uncharted possibilities for fighting disease. Much research is still needed to untangle the precise role played by each different type of bug.

Professor Jeremy Nicholson, one of the authors of the Perspective from the Department of Biomolecular Medicine at Imperial College London, explained: "It's only recently that we've discovered the huge influence that bugs in the gut have on people's health. The exciting thing about this is that it should be easier to create drugs that can change the bugs than it is to re-engineer human cells and signalling pathways inside the body. Also, if we're not interfering with the body's pathways, these drugs should have less toxic side-effects."

Research has already shown that the makeup of an individual's gut microbes is affected by their diet and other environmental factors. A recent study led by scientists from Imperial College showed that it is possible to alter the makeup of bugs in a mouse's gut, affecting their metabolism, using probiotics.

"We already know that external factors such as altering your diet can change the makeup of the bugs in your gut, so these kinds of therapies will mean a more holistic approach to medicine, looking not just at pharmaceutical treatments but also at lifestyle and nutrition. I think that in ten years' time it will be normal for scientists to take gut bugs into consideration when they are creating new medicines," added Professor Nicholson.

Source: Imperial College London

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