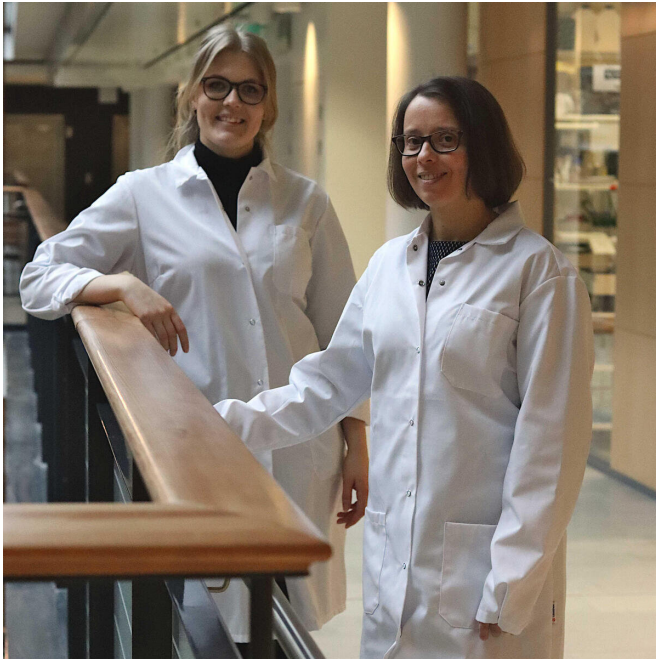


# Gut microbiota reveal whether drug therapies work in inflammatory bowel diseases

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Postdoctoral Researcher Eija Nissilä (Right) And Masters Student Rebecka Ventin-Holmberg. Credit: University of Helsinki

The prevalence of inflammatory bowel diseases has significantly increased both in Finland and globally. These disorders cannot be entirely cured. Instead, they are treated with anti-inflammatory drugs and, at times, through surgery.

If conventional [drug therapies](#) based on [anti-inflammatory drugs](#) are ineffective, the diseases can be treated using infliximab, a biological TNF- $\alpha$  blocker that is administered intravenously. Infliximab is an antibody that prevents TNF- $\alpha$ , a pro-inflammatory factor, from binding with [inflammatory cells](#) in the intestine. It is effective in reducing inflammation and improving the patient's condition, while also controlling the disease well.

Although infliximab therapy is often effective, roughly 30-40% of patients either do not respond to the treatment or lose response over time. So far, no reliable tests for predicting treatment response are available.

"A test for predicting responses would help to choose [drug](#) therapies and avoid unnecessary drug use, which would reduce potential adverse effects and save on drug expenses in the healthcare system," postdoctoral researcher Eija Nissilä says.

In a collaborative project, the University of Helsinki and the Department of Gastroenterology at the Helsinki University Hospital investigated whether any predictors associated with infliximab therapy could be identified in the gut microbiota. The results were published in the *Journal of Crohn's and Colitis*.

The study revealed that already before treatment the gut microbiota of inflammatory bowel disease patients differed in terms of several bacterial and fungal genera. These differences had a link to infliximab therapy response.

The changes that occurred in the [gut microbiota](#) during therapy also differed between patients who presented a response to treatment and those who did not. The gut of non-responsive patients had fewer anti-inflammatory bacteria of the Clostridia family and a higher number of pro-inflammatory bacteria and fungi such as Candida. Certain bacteria found in the intestine predicted a good response to infliximab therapy.

Based on the results, gut bacteria and fungi could potentially be used as indicators when assessing whether to initiate treatment or not.

"Such a predictive test would make it possible to

choose the appropriate therapy, providing savings in drug [therapy](#) costs in healthcare," Nissilä notes.

**More information:** Rebecka Ventin-Holmberg et al, Bacterial and Fungal Profiles as Markers of Infliximab Drug Response in Inflammatory Bowel Disease, *Journal of Crohn's and Colitis* (2020).  
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