

Interplay between intestinal celiac disease and the gut microbiome

By Dr Bilqeesa Bhat

Scientists headed by Dr. Yogesh Shouche at the National Centre for Cell Science, Pune have discovered differences in gut microbiome of celiac disease (CD) patients and their first degree relatives (FDR). They also found that the microbial community present in CD patients have reduced capability to degrade gluten as compared to their healthy FDR, and may be the cause of disease manifestation. Team analyzed and compared the gut microbes from both fecal samples as well duodenal biopsy samples.



Rahul Bhodkhe of NCCS (centre) received the Young Investigator Award at the 10th India Probiotic Symposium

Findings revealed an imbalances i.e., dysbiosis in gut microbiome of CD patients as compared to their FDR. The reduced gluten degrading capacity microbiome may, therefore, play a role in causing CD. However, this will need to be confirmed experimentally. Further studies are ongoing to gain deeper insights into the relationship between the gut microbiome and CD. Rahul Bodkhe from Dr. Yogesh Shouche's group recently presented some findings of this research at the 10th India Probiotic Symposium, New Delhi, for which he was awarded the Young Investigator Award as a 1st runner up.

Celiac disease (CD) is caused by an immune reaction triggered in the small intestine in response to consumption of gluten, the major protein component of some grains like wheat, barley and rye. It affects about 0.7% of genetically susceptible individuals across the globe. However, gluten consumption and genetic predisposition are not the sole factors that contribute to this development of this disease. Recent studies have reported that there are changes in the composition of the types of microorganisms present in the gut of CD patients, collectively known as microbiome. However, whether the disturbance / imbalance in the microbiome (dysbiosis) in CD patients could be the cause of the disease remains unclear.

An examination of the status of the gut microbiome before onset of the disease could offer clues about the manifestation of CD. In this context, the FDR of patients who are predisposed but do not suffer from CD themselves, provides an opportunity to study the healthy gut microbiome. Scientists have reported some differences in gut microbiome of healthy and diseased person, however, reports on the patterns of microbes residing in certain sites of the small intestine, such as the duodenum, which is mainly affected in CD, are scarce. Furthermore, there are no reports on site-specific and whole gut microbiome study of FDRs.

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