



ABSTRACT

Title: Phenotypic and immunogenic diversity of gut fungal isolates in pediatric Crohn's disease

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Abstract content:

Intestinal fungal communities play a complex role in health and the pathogenesis of Inflammatory Bowel Diseases (IBD). While the contribution of fungi to IBD progression is well recognized, the mechanisms by which certain yeast strains amplify inflammation and acquire pathogenic features remain poorly understood.

In this study, fecal samples were collected from 23 pediatric Crohn's disease patients, and metagenomic analyses were performed to identify microbial signatures associated with the disease and yeast species were isolated. The isolates were phenotypically characterized and stratified based on the risk of aggressive disease progression and were used in immunological tests to assess cytokine profiles.

For strains with higher clinical relevance, the cell wall was analyzed by measuring structural sugars and evaluating their interaction with human immune receptors such as Dectin-1 and Dectin-2, which are known to play key roles in immune response modulation.

These findings highlight the critical importance of strain-level analysis in understanding the relationship between microbial composition and the risk of disease progression. Moreover, they provide a strong foundation for developing targeted therapies, paving the way for precision medicine and personalized management of Crohn's disease.