Intestinal epithelial cells and T cells differentially recognize and respond to *Candida albicans* yeast and hypha.

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Abstract

Inflammatory bowel diseases (IBD) are a multifactorial disorder. Our understanding of the role of bacteria in the pathogenesis of IBD has increased substantially; however, only scarce data exist regarding the role of commensal fungi in maintaining intestinal homeostasis and triggering IBD. Candida albicans (C. albicans) is a member of the intestinal mycobiome and proposed to contribute to IBD pathogenesis. We aimed to investigate the influence of the two morphologies of C. albicans, yeast and hypha, on epithelial cells and T cells from IBD patients versus healthy controls. We found that C. albicans was recognized by both epithelial cells lines and T cells. In the intestinal epithelial cell line, Caco-2, response to hypha was different than to yeast cells, and this was mimicked by synthetic β-glucans and Pam3CSK4. Unstimulated T cells exhibited increased

activation and pro-inflammatory cytokine secretion upon exposure, while there was no effect on apoptosis or proliferation. In contrast, C. albicans-challenged CD3-stimulated T-cells exhibited decreased activation, cytokine secretion, apoptosis, and proliferation, suggesting reciprocal responsiveness to C. albicans. Glycans alone did not mimic abovementioned influences on T cells, suggesting alternative modes of recognition. In conclusion, we provide evidence for glycan dependent and independent recognition of C. albicans by epithelial cells and T cells.

Involved units

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