

The gut microbiota and inflammatory bowel disease.

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Abstract

PURPOSE OF REVIEW: Inflammatory bowel diseases (IBDs) reflect the cooperative influence of numerous host and environmental factors, including those of elements of the intestinal immune system, the gut microbiota, and dietary habits. This review focuses on features of the gut microbiota and mucosal immune system that are important in the development and control of IBDs.

RECENT FINDINGS: Gut innate-type immune cells, including dendritic cells, innate lymphoid cells, and mast cells, educate acquired-type immune cells and intestinal epithelial cells to achieve a symbiotic relationship with commensal bacteria. However, perturbation of the number or type of commensal microorganisms and endogenous genetic polymorphisms that affect immune responses and epithelial barrier system can ultimately lead to IBDs. Providing beneficial bacteria or fecal microbiota transplants helps to reestablish the intestinal environment, maintain its homeostasis, and ameliorate IBDs.

SUMMARY: The gut immune system participates in a symbiotic milieu that includes cohabiting commensal bacteria. However, **dysbiotic conditions and aberrations in the epithelial barrier and gut immune system can disrupt the mutualistic relationship between the host and gut microbiota, leading to IBDs.** Progress in our molecular and cellular understanding of this relationship has yielded numerous insights regarding clinical applications for the treatment of IBDs.

