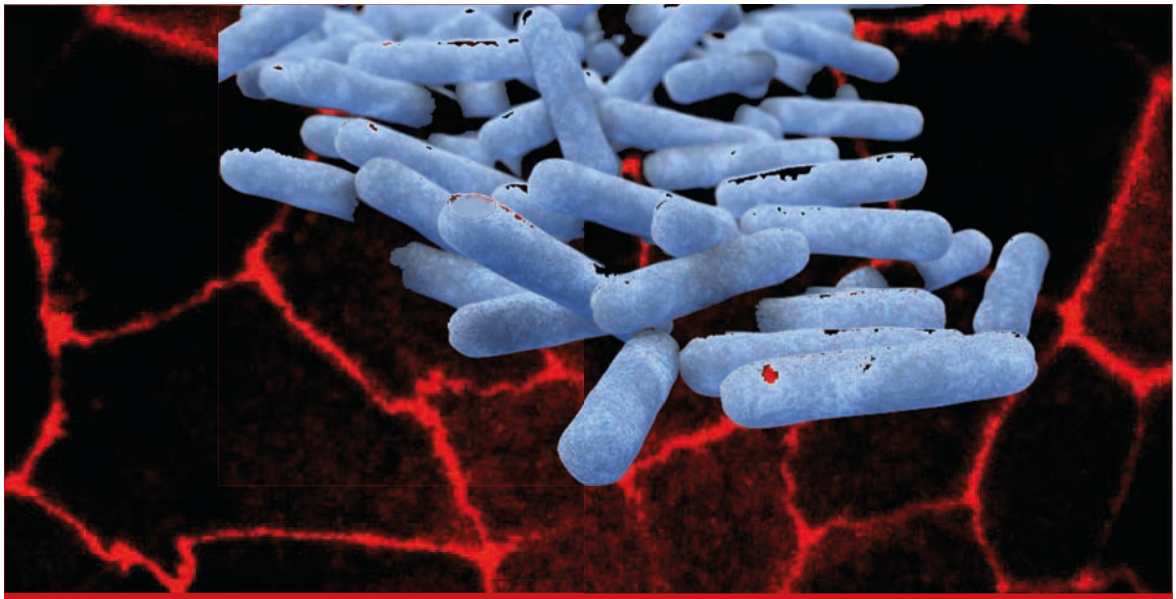
β-Defensin 2



Intestinal Barrier Marker

ELISA for Routine Diagnostics & Research of

- Mucosal Immune System
- Leaky Gut Syndrom
- Inflammatory Bowel Disease

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β-Defensin 2

Intestinal barrier marker

β-Defensins: protection against microbial invasion

Members of the human β-defensin (hBD) protein familiy are an integral part of the congenital immune system and contribute with their antimicrobial effect to the barrier function of the intestinal epithelial cells. In addition, they play a role in adjusting the balance among bacterial populations and in controlling homeostasis.

When the intestinal ecosystem is in balance, mucosal epithelial cells provide a strong chemomechanical barrier to invasion by microorgansims, such as bacteria and viruses. The dominant constitutive defensin in the epithelium of the large intestine is hBD1. hBD2, -3, and -4, in contrast, are synthesized by the colonic mucosa only during inflammation or infection to prevent further bacterial entry into the epithelium. In this phase, microorganisms (e.g. bacteria, viruses), pro-inflammatory cytokines and growth factors (e.g. TNFα, IL-1-ß) induce gene expression of these hBDs [1-3].

β-Defensin-2 expression in inflammatory bowel diseases

Indications

- Intestinal barrier status
- Mucosal immune system analysis
- Leaky gut syndrome
- Differentiation between colonic Crohn's disease and ulcerative colitis

β-Defensin 2	
Matrix	Stool
Sample volume	15 mg
Test principle	ELISA
Cat. No.	K 6500

Chronic inflammatory bowel diseases (IBD) are characterized by a shift in the intestinal balance towards chronic inflammation. As expected, hBD2 expression is significantly elevated in patients with active ulcerative colitis and ileal Crohn's disease, indicating the mobilisation of the epithelial defense [4, 5].

In contrast, patients with colonic Crohn's disease exhibit low fecal hBD2 levels due to a missing hBD2 gene copy [2, 3]. This defensin deficiency may be involved in the pathogenesis of the disease since the weakened defense against microbial infections might lead to chronic inflammation [3].

The different expression of hBD2 in IBD indicates varying responses of the mucosal innate defense to chronic inflammation and could be utilized in differential diagnosis of colonic Crohn's disease and ulcerative colitis.

Literature

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