Candida albicans-secreted aspartic proteinases modify the epithelial cytokine response in an *in vitro* model of vaginal candidiasis.

Schaller M, Korting HC, Borelli C, Hamm G, Hube B (2005) *Candida albicans*-secreted aspartic proteinases modify the epithelial cytokine response in an *in vitro* model of vaginal candidiasis. *Infect Immun* 73(5), 2758-2765.

Abstract

Secreted aspartyl proteinases (Saps) are important virulence factors of Candida albicans during mucosal and disseminated infections and may also contribute to the induction of an inflammatory host immune response. We used a model of vaginal candidiasis based on reconstituted human vaginal epithelium (RHVE) to study the epithelial cytokine response induced by C. albicans. In order to study the impact of the overall proteolytic activity and of distinct Sap isoenzymes, we studied the effect of the proteinase inhibitor pepstatin A on the immune response and compared the cytokine expression pattern induced by the wild-type strain SC5314 with the pattern induced by Sap-deficient mutants. Infection of RHVE with the C. albicans wild-type strain induced strong interleukin 1alpha (IL-1alpha), IL-1beta, IL-6, IL-8, IL-10, granulocyte-macrophage colony-stimulating factor, gamma interferon, and tumor necrosis factor alpha responses in comparison with cytokine expression in noninfected tissue. Addition of the aspartyl proteinase inhibitor pepstatin A strongly reduced the cytokine response of RHVE. Furthermore, SAP-null mutants

lacking either SAP1 or SAP2 caused reduced tissue damage and had a significantly reduced potential to stimulate cytokine expression. In contrast, the vaginopathic and cytokine-inducing potential of mutants lacking SAP4 to SAP6 was similar to that of the wild-type strain. These data show that the potential of specific Saps to cause tissue damage correlates with an epithelium-induced proinflammatory cytokine response, which may be crucial in controlling and managing C. albicans infections at the vaginal mucosa in vivo.

Beteiligte Forschungseinheiten

Mikrobielle Pathogenitätsmechanismen Bernhard Hube Mehr erfahren

Leibniz-HKI-Autor*innen

Bernhard Hube

Details

Identifier

PMID: 15845479