Candida albicans-epithelial interactions: dissecting the roles of active penetration, induced endocytosis and host factors on the infection process.

Wächtler B, Citiulo F, Jablonowski N, Förster S, Dalle F, Schaller M, Wilson D, Hube B (2012) *Candida albicans*-epithelial interactions: dissecting the roles of active penetration, induced endocytosis and host factors on the infection process. *PLOS One* 7(5), e36952.

Details

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Abstract

Candida albicans frequently causes superficial infections by invading and damaging epithelial cells, but may also cause systemic infections by penetrating through epithelial barriers. C. albicans is a remarkable pathogen because it can invade epithelial cells via two distinct mechanisms: induced endocytosis, analogous to facultative intracellular enteropathogenic bacteria, and active penetration, similar to plant pathogenic fungi. Here we investigated the contributions of the two invasion routes of C. albicans to epithelial invasion. Using selective cellular inhibition approaches and differential fluorescence microscopy, we demonstrate that induced endocytosis contributes considerably to the early time points of invasion, while active penetration represents the dominant epithelial invasion route. Although induced endocytosis depends mainly on Als3-E-cadherin interactions, we observed E-cadherin independent induced endocytosis. Finally, we provide evidence of a protective role for serum factors in oral infection: human serum strongly inhibited C. albicans adhesion to, invasion and damage of oral epithelial cells.

Involved units

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Topics

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