

# Hgc1 mediates dynamic *Candida albicans*-endothelium adhesion events during circulation.

Wilson D, Hube B (2010) Hgc1 mediates dynamic *Candida albicans*-endothelium adhesion events during circulation. *Eukaryot Cell* 9(2), 278-287.

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## Abstract

Common iatrogenic procedures can result in translocation of the human pathogenic fungus *Candida albicans* from mucosal surfaces to the bloodstream. Subsequent disseminated candidiasis and infection of deep-seated organs may occur if the fungus is not eliminated by blood cells. In these cases, fungal cells adhere to the endothelial cells of blood vessels, penetrate through endothelial layers, and invade deeper tissue. In this scenario, endothelial adhesion events must occur during circulation under conditions of physiological blood pressure. To investigate the fungal and host factors which contribute to this essential step of disseminated candidiasis, we have developed an in vitro circulatory *C. albicans*-endothelium interaction model. We demonstrate that both *C. albicans* yeast and hyphae can adhere under flow at a pressure similar to capillary blood pressure. Serum factors significantly enhanced the adhesion potential of viable but not killed *C. albicans* cells to endothelial cells. During circulation, *C. albicans* cells produced hyphae and the adhesion potential first increased, then decreased with time. We provide evidence that a specific temporal event in the yeast-to-hyphal transition, regulated by the G(1) cyclin Hgc1, is critical for *C. albicans*-endothelium adhesion during circulation.

## Involved units

[Microbial Pathogenicity Mechanisms Bernhard Hube](#) [Read more](#)

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