

The *Candida albicans*-specific gene EED1 encodes a key regulator of hyphal extension.

Martin R, Moran GP, Jacobsen ID, Heyken A, Domey J, Sullivan DJ, Kurzai O, Hube B (2011) The *Candida albicans*-specific gene EED1 encodes a key regulator of hyphal extension. *PLOS One* 6(4), e18394.

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Abstract

The extension of germ tubes into elongated hyphae by *Candida albicans* is essential for damage of host cells. The *C. albicans*-specific gene EED1 plays a crucial role in this extension and maintenance of filamentous growth. *eed1*Δ cells failed to extend germ tubes into long filaments and switched back to yeast growth after 3 h of incubation during growth on plastic surfaces. Expression of EED1 is regulated by the transcription factor Efg1 and ectopic overexpression of EED1 restored filamentation in *efg1*Δ. Transcriptional profiling of *eed1*Δ during infection of oral tissue revealed down-regulation of hyphal associated genes including UME6, encoding another key transcriptional factor. Ectopic overexpression of EED1 or UME6 rescued filamentation and damage potential in *eed1*Δ. Transcriptional profiling during overexpression of UME6 identified subsets of genes regulated by Eed1 or Ume6. These data suggest that Eed1 and Ume6 act in a pathway regulating maintenance of hyphal growth thereby repressing hyphal-to-yeast transition and permitting dissemination of *C. albicans* within epithelial tissues.

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