

A role of *Candida albicans* CDC4 in the negative regulation of biofilm formation

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ABSTRACT

The CDC4 gene is nonessential in *Candida albicans* and plays a role in suppressing filamentous growth, in contrast to its homologues, which are involved in the G1 – S transition of the cell cycle. While characterizing the function of *C. albicans* CDC4 (CaCDC4), we found that the loss of CaCDC4 resulted in a reduction in cell flocculation, indicating a possible role for CaCDC4 in biofilm formation. To elucidate the role of CaCDC4 in biofilm formation, *Cacdc4* null mutant strains were constructed by using the mini-Ura-blaster method. To create a CaCDC4 rescued strain, the plasmid p6HF-ACT1p-CaCDC4 capable of constitutively expressing CaCDC4 was introduced into the *Cacdc4* homozygous null mutant. To determine the biofilm formation ability, an in vitro XTT (2,3-bis-(2-methoxy-4-nitro-5-sulfophenyl)-5-[(phenylamino)carbonyl]-2H-tetrazolium-5-carboxanilide) reduction assay was used. Compared with the parental auxotrophic strain BWP17, the *Cacdc4* homozygous null mutant was able to enhance biofilm formation significantly. This enhancement of biofilm formation in the *Cacdc4* homozygous null mutant could be reversed by constitutively expressing CaCDC4. We conclude that CaCDC4 has a role in suppressing biofilm formation in *C. albicans*.

Keywords: *Candida albicans* CDC4, XTT reduction assay, biofilm formation.

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