

The pH-regulated antigen 1 of *Candida albicans* binds the human complement inhibitor C4b-binding protein and mediates fungal complement evasion.

Luo S, Blom AM, Rupp S, Hipler UC, Hube B, Skerka C, Zipfel PF (2011) The pH-regulated antigen 1 of *Candida albicans* binds the human complement inhibitor C4b-binding protein and mediates fungal complement evasion. *J Biol Chem* 286(10), 8021-8029. [PubMed](#)

ILRS Authors

[Shanshan Luo](#)

Abstract

Candida albicans binds and utilizes human complement inhibitors, such as C4b-binding protein (C4BP), Factor H, and FHL-1 for immune evasion. Here, we identify *Candida* pH-regulated antigen 1 (Pra1) as the first fungal C4BP-binding protein. Recombinant Pra1 binds C4BP, as shown by ELISA and isothermal titration calorimetry, and the Pra1-C4BP interaction is ionic in nature. The Pra1 binding domains within C4BP were localized to the complement control protein domain 4 (CCP4), CCP7, and CCP8. C4BP bound to Pra1 maintains complement-inhibitory activity. C4BP and Factor H bind simultaneously to *Candida* Pra1 and do not compete for binding at physiological levels. A Pra1-overexpressing *C. albicans* strain, which had about 2-fold Pra1 levels at the surface acquired also about 2-fold C4BP to the surface, compared with the wild type strain CAI4. A Pra1 knock-out strain showed ~22% reduced C4BP binding. C4BP captured by *C. albicans* from human serum inhibits C4b and C3b surface deposition and also maintains cofactor activity. In summary, *Candida* Pra1 represents the first fungal C4BP-binding surface protein. Pra1, via binding to C4BP, mediates human complement control, thereby favoring the immune and complement evasion of *C. albicans*.

Identifier

doi: 10.1074/jbc.M110.130138 PMID: 21212281