Glycosylphosphatidylinositol-anchored proteases of *Candida albicans* target proteins necessary for both cellular processes and host-pathogen interactions.

Albrecht A, Felk A, Pichova I, Naglik JR, Schaller M, de Groot P, Maccallum D, Odds FC, Schäfer W, Klis F, Monod M, Hube B (2006) Glycosylphosphatidylinositol-anchored proteases of *Candida albicans* target proteins necessary for both cellular processes and host-pathogen interactions. *J Biol Chem* 281(2), 688-694.

Details

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Abstract

Intracellular and secreted proteases fulfill multiple functions in microorganisms. In pathogenic microorganisms extracellular proteases may be adapted to interactions with host cells. Here we describe two cell surface-associated aspartic proteases, Sap9 and Sap10, which have structural similarities to yapsins of Saccharomyces cerevisiae and are produced by the human pathogenic yeast Candida albicans. Sap9 and Sap10 are glycosylphosphatidylinositol-anchored and located in the cell membrane or the cell wall. Both proteases are glycosylated, cleave at dibasic or basic processing sites similar to yapsins and Kex2-like proteases, and have functions in cell surface integrity and cell separation during budding. Overexpression of SAP9 in mutants lacking KEX2 or SAP10, or of SAP10 in mutants lacking KEX2 or SAP9, only partially restored these phenotypes, suggesting distinct target proteins of fungal origin for each of the three proteases. In addition, deletion of SAP9 and SAP10 modified the adhesion properties of C. albicans to epithelial cells and

caused attenuated epithelial cell damage during experimental oral infection suggesting a unique role for these proteases in both cellular processes and host-pathogen interactions.

Involved units

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