Candidalysin is required for neutrophil recruitment and virulence during systemic *Candida albicans* infection.

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Abstract

Candidalysin is a cytolytic peptide toxin secreted by Candida albicans hyphae and has significantly advanced our understanding of fungal pathogenesis. Candidalysin is critical for mucosal C. albicans infections and is known to activate epithelial cells to induce downstream innate immune responses that are associated with protection or immunopathology during oral or vaginal infections. Furthermore, candidalysin activates the NLRP3 inflammasome and causes cytolysis in mononuclear phagocytes. However, the role of candidalysin in driving systemic infections is unknown. Here, using candidalysin-producing and candidalysin-deficient C. albicans strains, we show that candidalysin activates mitogen-activated protein kinase (MAPK) signalling and chemokine secretion in endothelial cells in vitro. Furthermore, candidalysin induces

immune activation and neutrophil recruitment in vivo, and promotes mortality in zebrafish and murine models of systemic fungal infection. The data demonstrate a key role for candidalysin in neutrophil recruitment and fungal virulence during disseminated systemic C. albicans infections.

Involved units

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Topics

Interactions with immune cells (MPM)

Damage to the host

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Evolution & adaptation in pathogenicity

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