

Interaction of phagocytes with filamentous fungi.

Brakhage AA, Bruns S, Thywissen A, Zipfel PF, Behnsen J (2010) Interaction of phagocytes with filamentous fungi. *Curr Opin Microbiol* 13(4), 409-415. [PubMed](#)

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Projects

Molecular mechanisms of the interaction between *Aspergillus fumigatus* and alveolar macrophages
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Abstract

Phagocytosis of conidia by macrophages and destruction of hyphae by neutrophils are key processes in the defense against infections caused by filamentous fungi. Impairment in phagocytic function leads to increased susceptibility for an infection with *Aspergillus* species. The fact that a Th1-based immune response to an infection with *Aspergillus* species results in an improved prognosis for survival underlines the importance of the phagocytic response. Recognition of conidia by macrophages occurs after shedding of the hydrophobic rodlet layer during swelling and germination. Whereas *Aspergillus* conidia are killed by various immune effector cells, hyphae are in particular targeted and killed by neutrophils. Moreover, both conidia and hyphae are trapped in neutrophil extracellular traps (NETs) that form a containment to localize the infection and to prevent systemic spreading of the fungus in the host. In addition, *A. fumigatus* interferes with the innate immunity, with both the complement system and defense mechanisms of phagocytes, thereby evading at least in part the innate immune system.

Identifier

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