

Deletion of the α -(1,3)-glucan synthase genes induces a restructuring of the conidial cell wall responsible for the avirulence of *Aspergillus fumigatus*.

Beauvais A, Bozza S, Kniemeyer O, Formosa C, Formosa C, Balloy V, Henry C, Roberson RW, Dague E, Chignard M, Brakhage AA, Romani L, Latgé JP (2013) Deletion of the α -(1,3)-glucan synthase genes induces a restructuring of the conidial cell wall responsible for the avirulence of *Aspergillus fumigatus*. *PLOS Pathog* 9(11), e1003716.

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Abstract

α -(1,3)-Glucan is a major component of the cell wall of *Aspergillus fumigatus*, an opportunistic human fungal pathogen. There are three genes (AGS1, AGS2 and AGS3) controlling the biosynthesis of α -(1,3)-glucan in this fungal species. Deletion of all the three AGS genes resulted in a triple mutant that was devoid of α -(1,3)-glucan in its cell wall; however, its growth and germination was identical to that of the parental strain in vitro. In the experimental murine aspergillosis model, this mutant was less pathogenic than the parental strain. The AGS deletion resulted in an extensive structural modification of the conidial cell wall, especially conidial surface where the rodlet layer was covered by an amorphous glycoprotein matrix. This surface modification was responsible for viability reduction of conidia in vivo, which explains decrease in the virulence of triple *ags* Δ mutant.

Involved units

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Identifier

doi: 10.1371/journal.ppat.1003716

PMID: 24244155

