



# Enzymatic Mechanisms Involved in Evasion of Fungi to the Oxidative Stress: Focus on *Scedosporium apiospermum*

Submitted by Beatrice Guillaumat on Thu, 08/29/2019 - 11:05

Titre Enzymatic Mechanisms Involved in Evasion of Fungi to the Oxidative Stress: Focus on *Scedosporium apiospermum*

Type de publication Article de revue

Auteur Staerck, Cindy [1], Vandeputte, Patrick [2], Gastebois, Amandine [3], Calenda, Alphonse [4], Giraud, Sandrine [5], Papon, Nicolas [6], Bouchara, Jean-Philippe [7], Fleury, Maxime [8]

Editeur Springer

Type Article scientifique dans une revue à comité de lecture

Année 2018

Langue Anglais

Date Février 2018

Numéro 1

Pagination 227-239

Volume 183

Titre de la revue Mycopathologia

ISSN 1573-0832

Mots-clés Cystic fibrosis [9], Enzymes [10], host-pathogen interactions [11], Humans [12], Immune Evasion [13], Lung Diseases, Fungal [14], Oxidative Stress [15], Reactive Nitrogen Species [16], Reactive Oxygen Species [17], *Scedosporium* [18]

Résumé en anglais The airways of patients with cystic fibrosis (CF) are frequently colonized by various filamentous fungi, mainly *Aspergillus fumigatus* and *Scedosporium* species. To establish within the respiratory tract and cause an infection, these opportunistic fungi express pathogenic factors allowing adherence to the host tissues, uptake of extracellular iron, or evasion to the host immune response. During the colonization process, inhaled conidia and the subsequent hyphae are exposed to reactive oxygen species (ROS) and reactive nitrogen species (RNS) released by phagocytic cells, which cause in the fungal cells an oxidative stress and a nitrosative stress, respectively. To cope with these constraints, fungal pathogens have developed various mechanisms that protect the fungus against ROS and RNS, including enzymatic antioxidant systems. In this review, we summarize the different works performed on ROS- and RNS-detoxifying enzymes in fungi commonly encountered in the airways of CF patients and highlight their role in pathogenesis of the airway colonization or respiratory infections. The potential of these enzymes as serodiagnostic tools is also emphasized. In addition, taking advantage of the recent availability of the whole genome sequence of *S. apiospermum*, we identified the various genes encoding ROS- and RNS-detoxifying enzymes, which pave the way for future investigations on the role of these enzymes in pathogenesis of these emerging species since they may constitute new therapeutics targets.

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DOI 10.1007/s11046-017-0160-6 [20]  
Lien vers le document <https://link.springer.com/article/10.1007%2Fs11046-017-0160-6> [21]  
Autre titre Mycopathologia  
Identifiant (ID) PubMed 28639066 [22]

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