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LOMENTOSPORA PROLIFICANS CYCLOPHILIN AND ENOLASE ARE RECOGNIZED BY IMMUNOCOMPETENT HUMAN IGA AS THE MOST PREVALENT CONIDIAL ANTIGENS AND CROSS-REACT WITH ASPERGILLUS FUMIGATUS ANTIGENS

Idoia Buldain, Andoni Ramirez-Garcia, Aize Pellon, Aitziber Antoran, Maria Jesus Sevilla, Aitor Rementeria and Fernando L. Hernando.

Universidad del País Vasco/Euskal Herriko Unibertsitatea (UPV/EHU)

In the last decades the incidence of invasive mycosis has increased considerably, killing about one and a half million people every year. Of particular concern is the rise in the number of clinical cases produced by Lomentospora prolificans and the high mortality rates associated with them, which are mainly due to the intrinsic resistance of this fungus to the currently available antifungals. Given the fact that this fungus rarely infects immunocompetent individuals, the study of their immune response might offer interesting information to improve therapeutic efficacy against this devastating infections. In these sense, since L. prolificans penetrates into host mainly through airways, the aim of this study was to identify the most prevalent conidial antigens of L. prolificans recognized by healthy human salivary IgA, and to study their expression and cross-reactivity with other fungal species. For this, ten proteins recognized by more than 50% of saliva were detected by 2D immunobloting and identified by LC-MS/MS. Concretely, we identified cyclophilin and enolase as the most prevalent antigens, which are located on the fungal cell surface and, therefore, easily accessible to immune system and drugs. These enzymes were also identified on the immunomes of phylogenetically related fungi, Scedosporium apiospermum and S. aurantiacum. Additionally, it is worth highlighting that they showed cross-reactivity with the commonest pathogenic filamentous fungus Aspergillus fumigatus. Consequently, this work represents a step forward in the search for alternatives to fight these devastating diseases, proposing those conserved enzymes as interesting candidates to be evaluated as therapeutic targets or immunogens for developing vaccines. Moreover, they might be able to protect not only against L. prolificans but also against other fungal species.