



**Dolly Montano**

## **The contribution of spore surface proteins of *Lichtheimia corymbifera* during infection of the host cells**

*Lichtheimia corymbifera* is a causative agent of mucormycosis, a life-threatening infection caused by members of the fungal order Mucorales. This infection has higher incidences in patients suffering from hematological malignancies, diabetes, or undergoing organ transplantation. Mucormycosis is characterized by a fast invasion of blood vessels that further leads to infarction, thrombosis and tissue necrosis. Furthermore, this infection is associated with a high mortality rate due to its rapid destruction of tissue, difficult early-diagnosis, and resistance to various antifungal agents, which reduces therapeutic options. Currently, *L. corymbifera* is considered the second most causative agent of mucormycosis in Europe with an increasing number of clinical cases. However, little is known about infection mechanisms of *L. corymbifera* and the contribution of spore surface proteins during infection. Therefore, we aimed to study the interaction of *L. corymbifera* with professional phagocytes (monocytes and macrophages), which represent the first line of defense during pulmonary infections, and non-professional phagocytes such as lung epithelial cells, the first physical barrier to be in contact with fungal spores, as well as, endothelial cells involved in extensive angioinvasion caused by Mucorales fungi, which often leads to ischemic necrosis. Once characterized the interaction with the different type of cell lines, we will elucidate the contribution of some candidate surface proteins of *L. corymbifera* in its recognition by the host cells when initiating infection. Finally, in order to determine infection mechanisms of this fungus, we plan to develop *in vitro* infection models by using fluorescent staining, confocal laser scanning microscopy and flow

cytometric analysis, as well as, a yeast surface display system to evaluate gaining of function of *S. cerevisiae* expressing the *L. corymbifera* proteins on the cell surface.

## **Publications**

Montaño DE, Voigt K (2020) Host Immune Defense upon Fungal Infections with Mucorales: Pathogen-Immune Cell Interactions as Drivers of Inflammatory Responses. *J Fungi (Basel)* 6(3), [Details](#) [PubMed](#)

## **Supervisor**

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## **Start of PhD**

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