

## Abstracts of poster presentations

P010 - Antifungal agents induces alteration in the matrix composition of candida glabrata biofilms

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*Candida glabrata* has emerged as the second most prevalent pathogen, after *Candida albicans*, in mucosal and invasive fungal infection. Its ability to form biofilms has been considered one of the most important virulence factors, since they present a high resistance to antifungal agents used in fungal infections treatment. Moreover, there is a lack of information about the physiological response of *C. glabrata* biofilms to antifungal agents. Thus, the aim of this study was to evaluate the effect of different antifungal agents on *C. glabrata* biofilm composition and the influence in related resistance genes expression. For that *C. glabrata* biofilms were formed in the presence of fluconazole (Flu), voriconazole (Vrz) and amphotericin B (AmB). Biofilm matrix composition was evaluated in terms of polysaccharides, proteins and ergosterol and ERG genes expression was also assessed.

As expected *C. glabrata* biofilms are more resistant to Flu, Vrz and AmB than planktonic cells. . Although in a strain dependent manner, polysaccharides were increased in the presence of the antifungals, in opposition to proteins, which decreased in the presence of AmB and Vrz. Due to the interaction of these agents with ergosterol, even in different ways, we evaluated, for the first time, the presence of this compound in the extracellular matrix. It was noticed that ergosterol was, in fact, present in all the matrices and in general it increased with the presence of the drugs. Therefore, there is an obvious answer of biofilm cells to the stress induced by the different agents, that caused an alteration of matrix composition.

In order to determine if the increased concentration of ergosterol in the biofilm matrix was caused by an up-regulation of proteins responsible for ergosterol synthesis, *ERG* expression was evaluated.. Although *ERG* gene expression was very strain dependent it was possible to verify that some genes, as *ERG11* and *ERG6*, were upregulated in biofilm cells. Interestingly one strain was unable to express ERG genes when grown in the presence of Vrz.

It was then possible to conclude that biofilm cells upon exposure to antifungal agents overexpress ERG genes, which seems to contribute to an increase in ergosterol concentration in the biofilm matrix.