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UNIVERSIDADE DO MINHO

INSTITUTE FOR BIOTECHNOLOGY AND BIOENGINEERING

# Presence of extracellular DNA in *Candida albicans* biofilm matrix and its role in biofilm structure and antifungal susceptibility

Margarida Martins[1], Priya Uppuluri[2], Derek P. Thomas[2], Ian A. Cleary[2], Mariana Henriques[1], José L. Lopez-Ribot[2], Rosário Oliveira[1,*]

*[1]IBB-Institute for Biotechnology and Bioengineering, Centre of Biological Engineering, Universidade do Minho, Campus de Gualtar, 4710-057 Braga, Portugal; [2]Department of Biology and South Texas Center for Emerging Infectious Diseases, The University of Texas at San Antonio, San Antonio, Texas 78249, USA*

Biofilms are structurally complex microconsortia of surface adhering cells embedded within an extracellular matrix (ECM) composed of substances produced and secreted by cells or derived from cell lysis. One of the recently discovered bacterial biofilms ECM components is the extracellular DNA (eDNA). Although the investigation on eDNA in fungal biofilms is scarce, preliminary studies suggest that eDNA may play a role in biofilms formed by the opportunistic fungal pathogen *Candida albicans*. Thus, the present study aimed at determining the eDNA content of *C. albicans* SC5314 biofilm ECM and the effect of DNase I treatment on biofilm formation and biofilm cells susceptibility to antifungals, as indicators of the role of eDNA in *C. albicans* biofilms.

Results from our experiments showed that the ECM of *C. albicans* biofilms formed under conditions of flow for 48 h contained 3045.4 ± 227.3 ng eDNA/mg of protein. Additionally, using a microtiter plate model, we observed that different DNase treatments (0.02 - 2 mg/ml) did not affect further biofilm development by *C. albicans* adherent cells. However, DNase (> 0.03 mg/ml) promoted a general biomass reduction on *C. albicans* preformed biofilms. Finally, DNase (0.13 mg/ml) did not change *C. albicans* biofilm cells susceptibility to fluconazole, but increased their susceptibility to amphotericin B and caspofungin, as indicated by the lower SMIC compared to biofilms grown without DNase.

This work presents evidence for the role of eDNA in *C. albicans* biofilm integrity and antifungal resistance consistent with eDNA being a key element of the ECM.