Session 2
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10:15 h

Exploring bioinformatics tools and databases to decipher the proteome of *Candida glabrata* biofilm matrix

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Candida glabrata is a clinically relevant human pathogen with ability to form high recalcitrant biofilms, which produce an extracellular matrix suggested to have structural, virulent and protective roles. Thus, elucidation of matrix components, their function and regulation, is crucial to disclose matrix role in *C. glabrata* pathogenesis. As such, this study aimed to reveal, the matrix proteome of *C. glabrata* biofilms and to characterize it exploring bioinformatics tools. For that, extracted *C. glabrata* matrix proteins were analyzed through LC-MS/MS and identified using UniProt database. The functional distribution of the matrix proteins found was assessed using FungiFun tool and FunCat database. This analysis revealed an enrichment of proteins involved in carbohydrate-metabolism, which have a potential role in the delivery of carbohydrates into the matrix. Virulence-related functions were also found to be enriched among matrix proteins. Additionally, the predictive secretory nature of proteins was analysed using the Fungal Secretome Database and the Fungal Secretome KnowledgeBase. These analyses revealed that many matrix proteins have unconventional secretory pathways. Furthermore, orthologous proteins, identified with PathoYeastract database, were searched in *Candida* Genome Database using the keywords “extracellular region” and “biofilm matrix”. High overlap between *C. glabrata* matrix proteins and those secreted by other *Candida* spp, especially those of *Candida albicans* biofilm matrix was confirmed. Finally, using PathoYeastract platform, Pdr1 was indicated to be a potential regulator of matrix proteome and STRING analysis revealed high molecular interaction, either direct or indirect, between Pdr1 target-proteins. This study provides a unique resource for further functional investigation of matrix proteins, contributing to the identification of potential targets for the development of new therapies against *C. glabrata* biofilms.