POSTER 01

Anti-*EFG1* oligomer able to control *Candida albicans* filamentation in human body fluids

ANA BARBOSA[1]; DANIELA ARAÚJO[1]; MARIANA HENRIQUES[1]; SÓNIA SILVA[1]
1 Biological Engineering Center of the University of Minho, Braga, Portugal

Antisense oligomers (ASOs) and their analogues have been successfully utilized to silence gene expression for the treatment of many human diseases, however the control of yeast's virulence determinants has never been exploited before. In this sense, this work is based on the key hypothesis that if a pathogen's genetic sequence is a determinant of virulence, it will be possible to synthesize a nucleic acid mimic that will bind to the mRNA produced and will degrade it, blocking its translation into protein and consequently reduce its phenotype. *EFG1* is an important determinant of virulence that is involved in regulation of *Candida albicans* filamentation.
Thus, our main goal was to validate the in *vitro* applicability of an ASO, previously synthesized, targeting the *EFG1* mRNA. For that, the performance and stability of the anti-*EFG1*oligomer in human body fluids (artificial saliva and urine) was evaluated by determining its ability to inhibit *C. albicans* filamentation and to reduce *EFG1* gene expression. The results demonstrated that the anti-*EFG1* oligomer is capable to reduce not only the rate of *C. albicans* filamentation but also the size of their filaments. RT-PCR assays demonstrated *EFG1* gene expression reduction of 80% and 60% in the artificial saliva and urine, respectively. Since, the anti-*EFG1* oligomer maintains its activity and performance after 24h in human body fluids, this work reinforces a possible applicability of ASOs for controlling virulence genes and thus reduce *C. albicans* virulence factors, such as filamentation.

Keywords: *Candida albicans*; Candidiasis; Virulence factors; Antisense therapy.