P300. Preliminary studies on the role of *mazEF* in *S. epidermidis* biofilms dormancy

Vania Gaio, Nuno Cerca, Angela França
Centre of Biological Engineering (CEB), Laboratory of Research in Biofilms Rosário Oliveira (LIBRO), University of Minho, Campus de Gualtar, Braga, Portugal

E-mail: *vaniagaio13@gmail.com*

Background
Staphylococcus epidermidis has been recognized as one of the main causes of nosocomial infections, mainly due to its ubiquitous presence on human skin and mucous membranes and capacity to form biofilms on the surface of indwelling medical devices. *S. epidermidis* biofilm-associated infections are a major concern since biofilms present higher antimicrobial tolerance and ability to evade host immune defenses, often resulting in recurrent and relapsing infections. Importantly, some bacteria within biofilms have been found to enter a dormancy state, presenting less sensitivity to host immune response and antimicrobial therapy. Moreover, it was earlier found that *mazE*, a gene encoding a protein of the *mazEF* complex, was only expressed in situations where dormancy was induced. Thus, the aim of the study was to analyze the role of *mazEF* in *S. epidermidis* biofilm dormancy.

Method
First, *S. epidermidis* 1457 biofilms were studied to ensure this strain would fit the model that was previously developed to study dormancy: biofilms were grown in excess of glucose to induce dormancy and to prevent dormancy $MgCl_2$ was added to the medium. Then, this strain was used to construct a mutant for the genes *mazEF*, and its complemented strain. Wild type, mutant and the complemented strains were used to form biofilms and assess the number of viable and cultivable cells, respectively, by flow cytometry and CFU, as well as the biomass of the biofilms, quantified by optical density.

Results and Conclusion
S. epidermidis 1457 biofilms entered a dormant state when grown in glucose enriched medium, presenting lower ratios of cultivable/live cells comparing to biofilms grown in the presence of $MgCl_2$, especially in the case of the mutant strain. Interestingly, all biofilms grown under dormancy-induced condition showed a decrease in the number of cultivable cells, but *mazEF* mutant strain showed the most significant difference be-tween induced and prevented dormancy conditions. Overall these preliminary results suggest that *mazEF* complex has a role in dormancy.

Acknowledgments
This study was supported by the Portuguese Foundation for Science and Technology (FCT) by the funded project PTDC/BIA-MOL/29553/2017, under the scope of COMPETE2020 (POCI-01-0145- FEDER-029553) and by the strategic funding of unit UID/BIO/04469/2019.