144: Does mazEF have a role in *S. epidermidis'* biofilm dormancy? - *Gaio V*

Gaio V, França Â and Cerca N

CEB - Centre of Biological Engineering, University of Minho, Braga, Portugal

Introduction: *S. epidermidis* is one of the main causes of nosocomial infections associated with the use of medical devices, due to its ubiquitous presence in human skin and mucosae and capacity to form biofilms. Biofilms are a major concern in healthcare systems, since they present higher antimicrobial tolerance and ability to evade host immune defenses, leading to recurrent and relapsing infections. Moreover, the presence of dormant bacteria in biofilms increases their pathogenicity, by decreasing the effectiveness of both host immune response and antimicrobial therapy.

Hypothesis and aims: It was earlier found that a gene encoding a protein of the mazEF complex was upregulated in *S. epidermidis* biofilms with induced dormancy. Herein, we proposed to study the role of mazEF system in S. epidermidis biofilms dormancy.

Methodology: *S. epidermidis* strain 1457 was used to construct a mazEF mutant and its respective complemented strain. Then, we studied the influence of mazEF in biofilms dormancy, by assessing the number of viable and culturable cells and the optical density (OD) of the biofilms, under induced (excess glucose) or prevented (addition of MgCl2) dormancy conditions.

Results: All *S. epidermidis* populations tested (wild type, mazEF mutant and complemented strains) showed a higher ratio of cultivable/live cells when dormancy was prevented, comparing to the dormant state. The mutant strain showed the higher ratio of cultivable/live cells in the dormancy state.

Conclusion: Dormancy affects the number of cultivable cells in biofilms, despite maintaining the number of total cells of the biofilm, as well as its OD. MazEF seems to impact biofilm dormancy, since the most significant difference in the number of cultivable cells between the two conditions was found in the mutant strain.