

Poster Abstracts

[P026] INCREASED ANTIBIOTIC TOLERANCE TO TEICoplanin, VANCOMycin, RIFAMPICIN, ERYTHROMycin AND TETRACYcline FROM CELLS DETACHED FROM *S. EPIDERMIDIS* BIOFILM

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Staphylococcus epidermidis is a major etiological agent of nosocomial infections, mainly due to its ubiquitous presence in human skin and mucosae and ability to form biofilms, being recognized as a leader in hospital-acquired biofilm-associated infections. Since they are a great concern in healthcare systems, bacterial biofilms have been extensively studied over the years and their process of formation is frequently divided in adhesion, maturation and biofilm disassembly. However, little is known regarding the last stage, in which cells are detached from the biofilm and are able to spread the infections and cause serious complications. The main aim of this study was to assess the antimicrobial effect of peak serum concentrations of several antibiotics on distinct *S. epidermidis* bacterial populations: planktonic cultures (PLA) biofilms (BF) and cells released from biofilms (BRC). Thus, the tolerance of BRC, PLA and BF to a wide selection of antibiotics was studied by performing a series of in vitro assays using the method of detection of culturable cells by counting colony-forming units (CFUs). Interestingly, our study revealed significant differences in the susceptibility of BRC to antibiotics from different classes of action. More specifically, this population showed an increased tolerance to teicoplanin, vancomycin, rifampicin, erythromycin and tetracycline. Herein, we demonstrated that BRC were able to maintain an enhanced tolerance to antibiotics, similar to biofilms, despite being grown in the planktonic state for a few hours. Here we highlight that, due to BRC's increased susceptibility, current antimicrobial strategies used to treat biofilm-related infections should be reconsidered.