

## Theme: Modulation of biofilm communities

### Effect of single versus antibiotic combinations on *Staphylococcus epidermidis* biofilm viability and on genetic expression of some virulence genes

Fernanda Gomes<sup>1</sup>, Rosário Oliveira<sup>1</sup>, Howard Ceri<sup>2</sup>, Pilar Teixeira<sup>1</sup>, Nuno Cerca<sup>1</sup>

<sup>1</sup>University of Minho, Portugal, <sup>2</sup>University of Calgary, Canada

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In this study five clinical isolates strains were used, and nine antibiotics at breakpoint concentrations: vancomycin, tetracycline, rifampicin, gentamicin, cefazolin, cephalothin, levofloxacin, daptomycin and clindamycin were tested. 48 hours biofilms were grown on Calgary Biofilm Device (CBD) and challenged overnight with antibiotics alone and in combination. Biofilm cells viability was determined by colony forming units (cfu). Afterwards, the effect of the most active antibiotics combinations against *S. epidermidis* biofilm on genetic expression of some genes of interest such as: *icaA*, *icaR*, *sarA* and *rsbU* was determined by real-time PCR.

Although biofilms were generally insensitive to individual antibiotics, they were more susceptible to combinations. Levofloxacin was a constituent of almost all the combinations active against *S. epidermidis* biofilm pointing to be part of any antibiotic therapy directed against biofilms of these organisms.