

The Response of Biofilms to Antimicrobials

Oana Ciofu, University of Copenhagen, Copenhagen, Denmark

The interaction between bacterial biofilms and antibiotics is complex and distinct from that of planktonic cultures. Detangling the mechanisms of tolerance and resistance development in the heterogeneous biofilm populations is a prerequisite for establishing strategies to optimize antimicrobial efficacy to treat biofilm-related infections. The evolutionary mechanisms of tolerance and resistance to ciprofloxacin of *Pseudomonas aeruginosa* biofilm populations as revealed by gene-expression studies and whole genome sequencing will be presented. Possible ways to potentiate antibiotics and avoid resistance in biofilms will be discussed. Results from the studies of antibiotic combinations acting synergistically on biofilms of colistin resistant *P. aeruginosa* from cystic fibrosis (CF) patients and of combinations between antibiotics and bacteriophages against ciprofloxacin resistant *P. aeruginosa* from CF patients will be presented.