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Effects of select chemicals on the opportunistic multidrug-resistant bacterial pathogen, *Stenotrophomonas maltophilia* and its bio-film

Joanna S Brooke
DePaul University, USA

Stenotrophomonas maltophilia is a global human opportunist which is associated with infections that include those of the respiratory tract, bloodstream, soft tissue and bone, eye, heart and brain. *S. maltophilia* infection is of significant concern in immunocompromised patients and a high mortality rate has been reported. This bacterium is found in water, washed foods, plant roots and soils and animals. Hospital-acquired and community-acquired infections of *S. maltophilia* have been reported. Antimicrobial resistance surveillance monitoring networks worldwide report a steady rise in the number of drug-resistant strains of *S. maltophilia* recovered from patients. *S. maltophilia* is resistant to a wide range of antimicrobials, including beta-lactams, fluoroquinolones, aminoglycosides, polymyxins, macrolides, carbapenems, tetracyclines, chloramphenicol and trimethoprim-sulfamethoxazole. Intrinsically drug-resistant strains of *S. maltophilia* have been recovered from environments outside of the clinical setting. New strategies are needed to prevent/challenge *S. maltophilia* infections. *S. maltophilia* forms biofilms on medical devices and on living tissues. One of the goals of our laboratory is to study the molecular mechanisms used by this pathogen to form biofilms and subsequently identify suitable targets for treatment strategies to prevent/inhibit *S. maltophilia* growth, biofilms, and cell survival. We have observed that *S. maltophilia* is able to form biofilms on polyvinyl chloride, polystyrene and glass. We have screened various chemicals and observed that the growth and bio-film formation of *S. maltophilia* can be hindered. We will report on recent studies that examine the effects of select chemicals on the growth, biofilm development and survival of *S. maltophilia*.

Biography

Joanna S Brooke is an Associate Professor in the Department of Biology at DePaul University. She holds Doctorate and Masters' degrees in Microbiology and Immunology from the University of Western Ontario, with focus on bacterial lipopolysaccharide assembly and bacterial cell ultrastructure, respectively. Her Post-doctoral research at University of Texas, Southwestern Medical Center investigated the interactions of diphtheria toxin with its receptor. Her current research examines *S. maltophilia* and its bio-films. She also studies other potential bacterial pathogens. She has published 18 papers in peer-reviewed journals. She is a Guest Associate Editor for a Frontiers Research Topic on *S. maltophilia*.

JBROOKE@depaul.edu

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