Investigating the survival and persistence of the multiple-drug-resistant global opportunistic pathogen, *Stenotrophomonas maltophilia*

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*Stenotrophomonas maltophilia* is a worldwide opportunistic multiple-drug-resistant bacterial pathogen of significant concern to the immunocompromised patient population, and in patients with bacteremia it is associated with a significant crude mortality rate. This pathogen is associated with human infections, most commonly those of the respiratory tract, the bloodstream, eye, soft tissue, skin, bone, heart and brain. *S. maltophilia* is found in water, plant rhizosphere and soils, food, and animals. This pathogen is resistant to antimicrobials including beta-lactams, aminoglycosides, fluoroquinolones, trimethoprim-sulfamethoxazole, macrolides, carbapenems, chloramphenicol, tetracyclines, and polymyxins. The recovery of intrinsically drug-resistant *S. maltophilia* isolates recovered from nonclinical environments suggests that the drug resistance of *S. maltophilia* isolates from patients is not solely a result of antimicrobial use in hospitals or clinics. *S. maltophilia* forms biofilms on medical devices used by patients. These biofilms are difficult for the physicians to remove by physical methods or with exposure to antimicrobial agents. A major focus in our laboratory is to understand molecular mechanisms underlying biofilm formation used by this pathogen. We have observed that biofilms of drug-resistant environmental and clinical *S. maltophilia* isolates can form on plastics and glass within a few hours of introduction of the isolates. We will report on recent studies with clinical and environmental *S. maltophilia* isolates that investigate their exposures to different growth conditions and the subsequent effects on the survival of drug-resistant planktonic and biofilm-associated *S. maltophilia* on surfaces.

**Biography**

Joanna S Brooke is an Associate Professor in the Department of Biology at DePaul University. She holds doctorate and master’s degrees in microbiology and immunology from the University of Western Ontario, with emphasis on bacterial lipopolysaccharide assembly and bacterial ultrastructure, respectively. Her postdoctoral research at the University of Texas Southwestern Medical Center examined the interactions of diphtheria toxin with its receptor. Her current research studies, *S. maltophilia* and its biofilms. She also studies other potential bacterial pathogens on surfaces. She has published 18 papers in peer-reviewed journals. She is a Guest Associate Editor for a Frontiers Research Topic on *S. maltophilia*.

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