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Insights into drug-resistant *Stenotrophomonas maltophilia*, a global opportunistic bacterial pathogen

Stenotrophomonas maltophilia is a drug-resistant Gram-negative bacterial opportunistic pathogen found in moist environments in and outside the clinical setting. The World Health Organization has named *S. maltophilia* as a leading global drug-resistant pathogen in hospitals. Infections of *S. maltophilia* are of significant concern and associated with high mortality rates in the immunocompromised patient population. Various infections in humans are associated with *S. maltophilia*, most commonly those of the respiratory tract and this bacterium forms bio-films on medical devices and living tissues. *S. maltophilia* can be a co-colonizer in poly-microbial bio-films found in cystic fibrosis patients. Our studies and others have shown that the bio-film is influenced by cell ultrastructure and culture growth conditions. Genome sequencing and analysis have revealed considerable genetic diversity among *S. maltophilia* strains and multiple molecular mechanisms used to thwart antimicrobial treatment. The rise in antibiotic resistance of *S. maltophilia* worldwide emphasizes the need to develop new strategies and therapies to combat this emerging opportunistic pathogen. Studying the colonization, bio-film formation and virulence of *S. maltophilia* may help to identify suitable targets for pharmaceutical therapy. We will discuss the clinical challenges presented by this pathogen and new approaches being used to identify and treat *S. maltophilia* infections.

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*.

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