Shauna McGillivray

Professor & Associate Department Chair at Texas Christian University
Fort Worth, TX, US

Biology expert, focusing on genetic methods of fighting disease

Biography

I have had a long-standing interest in understanding host-pathogen interactions, particularly between bacterial pathogens and the host innate immune system. In my lab, we use molecular and microbiological tools to identify and investigate the mechanism behind potential bacterial virulence genes. We primarily work with Bacillus anthracis, the causative agent of the deadly disease anthrax, as well as with the Staphylococcus aureus, the leading cause of skin and soft tissue infections. Currently, my lab studies a conserved intracellular bacterial protease called ClpXP and its role in virulence. Loss of ClpXP through genetic or pharmacological inhibition renders B. anthracis unable to survive in the host. One possible mechanism is due to increased susceptibility to antimicrobial peptides produced by the host innate immune system. The connection between ClpXP and bacterial defense against antimicrobial peptides is currently a major focus of investigation. My lab is also interested in the development of new antimicrobial agents. We are currently working in collaboration with Dr. Ken Keiler at Penn State University to investigate inhibiting trans-translation in S. aureus as a potential antibiotic target.

Areas of Expertise

Antibiotic Resistance, Microbiology, Intersections of Genetics and Disease, Bacterial Virulence in Genes, Bacterial Pathogenesis

Affiliations

American Society of Microbiology, Texas Association for Advisors of Health Professions

Education

University of California, San Diego
PhD Biology

Concordia College
BSc Biology