

MSTP STUDENT DESCRIPTION

NAME: Greg Canfield

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Undergraduate College/University attended: Niagara University

Major: Biology/Biochemistry

Years in MSTP (1-8): 3

DEPARTMENT: **microbiology and immunology**

THESIS ADVISOR: **Dr. Steven Gill**

RESEARCH DESCRIPTION: My work focuses on the opportunistic microbial pathogen *Staphylococcus aureus*, the known causative agent of food poisoning, toxic shock syndrome, skin and soft tissue infections, bacteremia, necrotizing pneumonia, endocarditis and osteomyelitis. However, *S. aureus* can also be commonly found living as a commensal, most commonly within the nasopharynx of humans and other mammalian species. Reasons accounting for the difference in the pathogenic potential of certain *S. aureus* strains are lacking but have become clearer in the recent past with the sequencing of several *S. aureus* genomes and the characterization of many virulence determinants. Therefore, the goal of our lab is to continue to elucidate the mechanisms employed by pathogenic strains of *S. aureus* to initiate invasive infections using different bioinformatic and wet lab approaches. Our lab analyzes a large and well characterized collection of clinical and community isolates, known as the *Staphylococcus aureus* Bacteremia Group (SABG) collection, that represents a wide spectrum of *S. aureus* related disease, from commensal to invasive infection. Importantly, this collection provides us the opportunity to associate clinically significant invasive disease with the discovery of novel virulence factors and pathways. We believe that this approach will provide a clearer understanding and rationale for how *S. aureus* initiates and persists in an infection. Ultimately, it is our hope that this better understanding of how *S. aureus* pathogenesis occurs will lead to the development of improved therapeutics in order to reduce the large disease burden that currently plagues many patient populations worldwide.

Date of Completion (or expected) of PhD: **2011**

PUBLICATIONS / ABSTRACTS PRESENTED:

PROFESSIONAL/EDUCATIONAL MEETINGS ATTENDED (name of meeting, dates of attendance, location):

Eastern College Science Conference (Philadelphia, PA/St. Joseph's University-Mar. 2006), (Riverdale, NY/Manhattan College- Mar. 2005)

AWARDS / HONORS:

American Society of Microbiology Undergraduate Research Fellowship Award

MEDICAL SCHOOL ACTIVITIES:

UB Professional Conduct Committee, American Medical Association

EXTRACURRICULAR INTERESTS:

fishing, hunting, football, basketball, baseball, running, biking