RESEARCH PROGRESS REPORT SUMMARY

Original Project Description:

The bacterium *Staphylococcus pseudintermedius* is the most common cause of canine skin infections as well as other important canine diseases. Disfigurement caused by skin infections and treatment failures is an important problem. Resistance to antibiotics is becoming increasingly widespread with few or no antibiotic options left for some cases. Alternative therapeutic approaches being investigated include vaccines, small molecule virulence factor inhibitors and bacteriophage lytic enzymes. In order for new products to be effective against the broadest spectrum of wildtype bacterial strains as possible, it is important to determine which strains of *S. pseudintermedius* clinically predominate in the United States today. A genetic typing method for *S. pseudintermedius* was previously developed by the research team along with a survey of bacterial strains in the United States in which they sequenced the genomes of the most common strains. This analysis provided a snapshot of predominant strains and suggested a potential for emergence of new, highly antibiotic resistant organisms. Identifying the current strains in the US and sequencing their genomes will provide a basis for developing the next generation of treatments as well as important information about changes that occur in the bacterial population in response to selective pressures.

Publications: None at this time.

Presentations: None at this time.

Report to Grant Sponsor from Investigator:

This projected is designed to study the molecular epidemiology and characteristics of *Staphylococcus pseudintermedius* in the United States. This bacterium is the major cause of skin infections in dogs and has become widely resistant to antibiotics over the past 15 years. With data from about two-thirds of the samples we plan to collect, we have found widespread antibiotic resistance and emergence of new strains previously only associated with canine disease in other parts of the world. This information is important to understand the spread of antibiotic resistance and for the development of new strategies to treat and prevent this important disease.