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Analysis of Swimming Kinematics (ASK) for Rapid Pathogen Identification and Antibiotic Susceptibility Testing

Our team is called **PhAST** and we aim to develop the fastest **Phenotypic Antibiotic Susceptibility Test** to date. A phenotype is an observable characteristic of an organism, such as its shape or behavior. We have extensive expertise in measuring phenotypic traits of microbes by acquiring microscopy videos, and our approaches apply to the majority of pathogenic bacteria, including drug-resistant bacteria. We will compete for the AMR Diagnostic Test Challenge by developing a disruptive point-of-care diagnostic solution for rapid (i) identification and (ii) antibiotic susceptibility testing of two clinically relevant pathogens belonging to the 18 drug-resistant bacteria of highest concern in the United States. Our diagnostic technology is capable of imaging individual bacteria in samples from a wide range of body fluids and to determine how bacteria react to antibiotic exposure. A typical PhAST diagnostic test will use direct patient samples to identify pathogens and to determine their susceptibility to a prescribed set of antibiotics based on changes in phenotypic biomarkers that we track in real time.