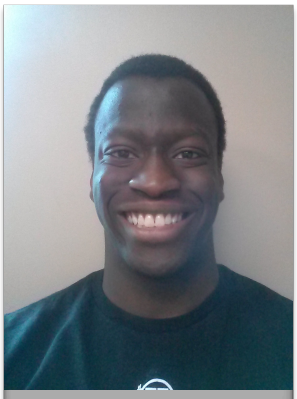

UNIQUE FIRST-IN-CLASS SERIES OF COMPOUNDS DEMONSTRATE THE ABILITY TO DISPERSE AND KILL BACTERIAL BIOFILMS

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There are three stages in a biofilm life cycle: attachment, growth and dispersion. Free-floating (planktonic) bacteria encounter a surface and begin producing extracellular polymeric substances to adhere and colonize the surface. After bacteria have adhered they begin to grow and develop a community, referred to as a biofilm. In a biofilm, bacteria become much more resistant to antibiotics compared to planktonic bacteria. As a biofilm matures, the community envelopes itself in a polysaccharide matrix creating a 3D scaffold. The scaffold consists of water channels that can shuttle antibiotics away from their community, reducing their clinical efficacy. One method of addressing this characteristic is to disperse a bacterial biofilm such that antibiotics can interact with cells throughout the biofilm community. Thus, the goal of this study was to determine the ability of a first-in-class series of antimicrobial compound to disperse and kill biofilms of methicillin-resistant *Staphylococcus aureus* (MRSA). To do so, biofilms were grown on the surface of stainless steel coupons in a CDC biofilm reactor, then exposed to CZ-1-99 for a period of 24 hours. For comparison, data were also collected with the current standard of care, vancomycin. Positive control data was collected by exposing biofilms to a known non-dispersing agent, glutaraldehyde. Data indicated that CZ-1-99 was able to disperse and kill MRSA biofilms, whereas vancomycin was not. After a careful literature review, this appears to be the first compound to demonstrate the ability to disperse and kill well-established biofilms of MRSA.