Illinois Wesleyan University
Digital Commons @ IWU

John Wesley Powell Student Research Conference 2010, 21st Annual JWP Conference

Apr 10th, 9:00 AM - 10:00 AM

Screening Staphylococcus aureus Transposon Mutants for Altered Nuclease Activity

Jennifer Sanderson
Illinois Wesleyan University

Matthew Thoendel, Faculty Advisor
University of Iowa

Jeffrey Kavanaugh, Faculty Advisor
University of Iowa

Alexander R. Horswill, Faculty Advisor
University of Iowa

Follow this and additional works at: http://digitalcommons.iwu.edu/jwprc

Part of the Biology Commons

Sanderson, Jennifer; Thoendel, Faculty Advisor, Matthew; Kavanaugh, Faculty Advisor, Jeffrey; and Horswill, Faculty Advisor, Alexander R., "Screening Staphylococcus aureus Transposon Mutants for Altered Nuclease Activity" (2010). John Wesley Powell Student Research Conference. 27.
http://digitalcommons.iwu.edu/jwprc/2010/posters/27

This Event is brought to you for free and open access by The Ames Library, the Andrew W. Mellon Center for Curricular and Faculty Development, the Office of the Provost and the Office of the President. It has been accepted for inclusion in Digital Commons @ IWU by the faculty at Illinois Wesleyan University. For more information, please contact digitalcommons@iwu.edu.

©Copyright is owned by the author of this document.
SCRENNING *STAPHYLOCOCCUS AUREUS* TRANSPOSON MUTANTS FOR ALTERED NUCLEASE ACTIVITY

*Jennifer Sanderson*, Matthew Thoendel, Jeffrey Kavanaugh and Alexander R. Horswill*
Biology Department, Illinois Wesleyan University
Department of Microbiology, University of Iowa

Recent studies show that extracellular DNA (eDNA) and nuclease play integral and antagonistic roles in *Staphylococcus aureus* biofilms. Release of eDNA into the biofilm matrix as a result of cell lysis takes place during initial attachment and development, while an increase in nuclease activity occurs during dispersal and decomposition. While studies demonstrate that the *cidA* and *lrg* operons help to control cell lysis and genomic DNA release, the genetic regulation of nuclease activity remains undefined. This study used transposon mutagenesis to create *S. aureus* mutants, and developed a fluorescent nuclease assay to screen these mutants for altered nuclease activity. By performing arbitrary PCR and DNA sequencing on the mutants that exhibited considerable increases or decreases in activity, we uncovered several genes potentially involved in the regulation of nuclease activity. With further investigation we hope that these genes provide insight not only into the regulation and activity of *S. aureus* nuclease, but also its role in the detachment of biofilms.