Staphylococcal research at the University of Nebraska Medical Center (UNMC) 
Fighting Drug Resistant Infection

- 6 faculty members doing staph research
- 1 $11 million P01 grant focused on staph biofilm
- 4 $1 million+ R01 grants
- multiple other grants (CDC, DoD, AHA, etc…)
First DoD Funding

- $1.9 mil DoD grant to generate critical tools for the research community

- employees six individuals
“The Nebraska Library”

A collection of mutants in which every non-essential gene in the *S. aureus* genome has been disrupted
Available for distribution through NARSA (the Network on Antimicrobial Resistant *Staphylococcus aureus*)
Phenotype microarray data using Biolog technology
The Nebraska Center for Staphylococcal Research (CSR)
Objectives of the CSR

- develop novel therapeutics

- develop molecular/genetic tools

- serve as a training center

- provide a resource for individuals affected by staphylococcal disease

- serve as a nidus for development of clinical research programs
Second DoD Funding

- collect staphylococcal clinical isolates
- sequence genomes (deep sequencing technology and computer infrastructure)
- look for signature sequences
Impact of project on Nebraskans

- four additional research personnel employed
- state-of-the-art technology brought to our state
Impact of project on people

- lead to new insight into device-related infections
- identify targets for the development of novel diagnostic strategies
- identify targets for the development of novel therapeutic agents
Impact of staph on our military personnel

- most common cause of skin and soft tissue infections
- most common cause of prosthetic device-related infections
- most common cause of battle wound infections
Staph biofilm
Differential control of cell death and lysis during biofilm development

Bacterial biofilm formation

Adapted from MSU Center of Biofilm Engineering
http://www.uweb.engr.washington.edu/research/tutorials/biofilm.html