

## Staph Aureus Vaccine Antigens EsxA, EsxB, EsaC and Emp

### SUMMARY

Dr. Olaf Schneewind's lab has developed several *S. aureus* vaccine antigens that protect against lethal exposure of the bacteria, a pathogen that can cause recurrent skin and soft tissue infections. The antigens include EsxA, EsxB, EsaC and Emp.

### KEY RESULTS

A number of *S. Aureus* extracellular bacterial proteins have been found that can invoke an immune response against the bacteria. The Staphylococcus aureus pathogen is the most common food-borne infection and is responsible for causing a number of other infections, including infections of open wounds and toxic shock syndrome. Staphylococcus aureus is also the most common cause of nosocomial infections with a significant morbidity and mortality. It is the cause of some cases of osteomyelitis, endocarditis, septic arthritis, pneumonia, abscesses and toxic shock syndrome. There is a continued need for therapeutic and preventative agents for infection by staphylococci.

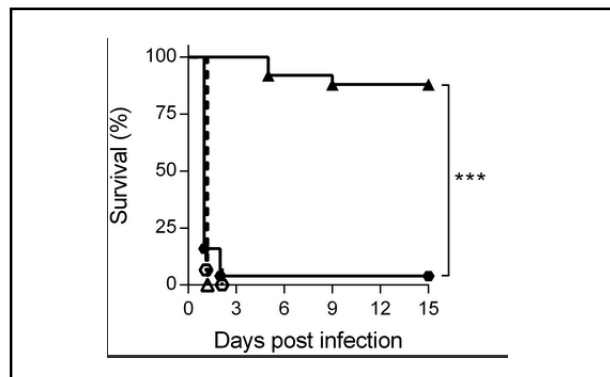
### ADVANTAGES

- Antigens can be combined for increased efficacy.

### APPLICATONS

- Infectious disease vaccine

*Vaccines protects against lethal challenge of S. Aureus*



Mouse survival data using a combination vaccine.

### TECHNICAL DESCRIPTION

Staphylococcus aureus and many other Gram-positive bacteria are known to secrete virulence factors or exotoxins into the extracellular milieu. Protein antigens based on these secreted materials can elicit a protective response in animal models.

### REFERENCE

UCHI 1306, 1727 and 1734

### DEVELOPMENT STAGE

*In vivo* testing in mice and guinea pigs

### THERAPEUTIC AREAS

Infectious disease vaccine

### PUBLICATION

[Burts, et al., PNAS, 2005 Jan 25; 102\(4\): 1169-1174.](#)

[Mancini et al. \(2016\). PLoS ONE 11\(1\): e0147767.](#)

[Burts, et al., Mol Microbiol. 2008 Aug; 69\(3\): 736-746.](#)

### INTELLECTUAL PROPERTY

US Appl. No. 12/161,315  
US Patent 8,758,765  
European Patent (UK, DE) EP2341929

### PRINCIPAL INVESTIGATORS

Olaf Schneewind, MD, PhD  
*Dr. Schneewind has consulted for several large pharmaceutical companies in relation to reverse vaccinology approaches that identify key vaccine targets essential for the pathogenicity of plague, S. aureus, and anthrax.*

Dominique Missiakas, PhD

Contact: Eric Ginsburg, PhD | [ginsburg@uchicago.edu](mailto:ginsburg@uchicago.edu) | 773-834-0746