Targeting Poly-Gamma-Glutamic Acid to Treat Staphylococcus Epidermidis and Related Infections

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Technology description

Over the past decade, Staphylococcus epidermidis has become the most prevalent pathogen involved in nosocomial infections. Usually an innocuous commensal microorganism on human skin, this member of the coagulase-negative group of staphylococci can cause severe infection after penetration of the epidermal protective barriers of the human body. In the U.S. alone, S. epidermidis infections on in-dwelling medical devices, which represent the main type of infection with S. epidermidis , cost the public health system approximately $1 billion per year. Importantly, S. epidermidis is frequently resistant to common antibiotics.
Immunogenic compositions and methods for eliciting an immune response against S. epidermidis and other related staphylococci are claimed. The immunogenic compositions can include immunogenic conjugates of poly-gamma-glutamic acid (such as gammaDLPGA) polypeptides of S. epidermidis , or related staphylococci that express a gammaPGA polypeptide. The gammaPGA conjugates elicit an effective immune response against S. epidermidis , or other staphylococci, in subjects to which the conjugates are administered. A method of treating an infection caused by a Staphylococcus organism that expresses cap genes is also disclosed. The method can include selecting a subject who is at risk of or has been diagnosed with the infection by the Staphylococcus organism which expresses gammaPGA from the cap genes. Further, the expression of a gammaPGA polypeptide by the organism can then be altered.

Application area

Prophylactics against S. epidermidis .

Institution

NIH - National Institutes of Health

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