Hope for a vaccination against Staphylococcus aureus infections?
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Staphylococcus aureus (S. aureus) ranks among the globally most important causes of infections in humans and is considered a dreaded hospital pathogen. Active and passive immunization against multi-resistant strains is seen as a potentially valuable alternative to antibiotic therapy. However, all vaccine candidates so far have been clinically unsuccessful. With an epitope-based immunization, scientists at Cologne University Hospital and the German Center for Infection Research (DZIF) have now described a new vaccination strategy against S. aureus in the Nature Partner Journal npj Vaccines.

"For the S. aureus protein coproporphyrinogen III oxidase (CgoX), we were able to narrow the epitope to a section comprising 12 amino acids," Klima explains. "What makes this work special is that it has been possible with this extremely small section of CgoX to trigger a protective immune response against the S. aureus infection. Narrowing the vaccine to a small epitope of 12 amino acids constitutes an unprecedented precision of a vaccine candidate against S. aureus."

Particularly encouraging is the observation that greater than 97 percent of the more than 35,000 investigated clinical strains of S. aureus feature this epitope unchanged and that this vaccine candidate will thus have a broad effect. "Epitope focused immunization represents a new quality in vaccine development because far fewer adverse immune reactions can be anticipated than those observed occasionally for the use of total proteins or even inactivated pathogens," Prof. Krönke concludes.

More information: Alexander Klimka et al,

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