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Staph Vaccine Shows Promise in Phase I

A new experimental vaccine against Staphylococcus aureus has been shown to be well-tolerated, and to boost antibodies, according to a paper in the December, 2010 issue of the journal Clinical and Vaccine Immunology. The vaccine was developed by Merck.

In the study, investigators led by Clayton Harro of the Johns Hopkins Bloomberg School of Public Health, Baltimore, gave a single vaccination in one of three different doses, or placebo, to four groups of 31 healthy volunteers, each, who ranged in age from 18-55. All three doses stimulated a rise in antibodies, the two higher doses significantly more so than the lowest dose. Antibody levels reached high levels after about 14 days, and they remained at those levels after three months.

"Based on this and other studies, the vaccine is now being tested in people who are at high risk of getting infected by *S. aureus* to see if the resulting antibodies can protect them from disease," says Harro. The need for such a vaccine is critical. *S. aureus* is the leading cause of hospital-acquired infections. "Invasive *S. aureus* infections (blood stream, deep wound, prosthetic device) have high

associated morbidity and mortality," says Harro -- in the US and Europe, 6 million people become infected annually, and 140,000 die. Multidrug-resistant *S. aureus* is an increasing problem.

Vaccine design has been a big challenge, says Harro. "*S. aureus* has a complicated structure, a vast array of strains, and an uncanny capacity to evade immune surveillance systems in our bodies." But these complexities may have been rendered largely moot when the researchers discovered a single protein on the bacterial surface that is common to most *S. aureus* strains. Modern antigen discovery techniques, not available until recently, enabled the protein's discovery.

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