

Staphylococcus aureus virulence tied to atopic dermatitis in infants

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(HealthDay)—Skin colonization by *Staphylococcus aureus* is associated

with the risk for developing atopic dermatitis (AD), and infants who do not develop AD primarily exhibit acquisition of dysfunctional mutations in the *S. aureus* quorum-sensing system, according to a study published in the July 8 issue of *Science Translational Medicine*.

Yuumi Nakamura, M.D., Ph.D., from the Chiba University Graduate School of Medicine in Japan, and colleagues performed whole-genome sequencing of *S. aureus* strains isolated from the cheek skin of 268 Japanese infants at 1 to 6 months old to examine the role in AD development.

The researchers found that regardless of AD outcome, about 45 percent of infants were colonized with *S. aureus* at 1 month. At 6 months of age, skin colonization with *S. aureus* was associated with an increased risk for developing AD. Strains from 6-month-old infants who did not develop AD primarily exhibited acquisition of dysfunctional mutations in the *S. aureus* Agr quorum-sensing system. In mice, expression of a functional Agr system in *S. aureus* was necessary for epidermal colonization and AD-like inflammation induction.

"These studies show that retention of *agr* virulence is associated with increased *S. aureus* skin colonization and development of AD in Japanese [infants](#)," the authors write.

One author disclosed financial ties to Boehringer Ingelheim.

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