

Oral bacterium possibly associated with systemic disease found in Alabama schoolchildren

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Prevalence of a recently discovered serotype of oral bacterium, with a possible link to a number of systemic diseases, was found for the first time in a small cohort of African-American schoolchildren in a southwest Alabama town, according to research being presented at the annual meeting of the American Society for Microbiology.

Streptococcus mutans serotype k, first discovered in Japan in 2004, has been linked to a number of systemic diseases, including bacteremia, [infective endocarditis](#) and hemorrhagic stroke. "However, the bacteria evaluated in the present study were missing the proteins suggested to link *S. mutans* serotype k with these systemic diseases," said Stephanie Momeni, a doctoral candidate in the UAB Department of Biology, which is housed in UAB's College of Arts and Sciences and lead author of the study.

"*S. mutans* is associated with oral disease, but some serotypes have been reported to be more invasive and thus may also contribute to systemic disease," Momeni said. "The *S. mutans* serotype k found in this study has undetermined significance since it lacks the previously identified invasive genes. Given the small sample size, results are considered preliminary."

Samples were collected from schoolchildren between the ages of 5 and 10 as part of an ongoing longitudinal epidemiological study of *S. mutans*.

A total of 57 children were tested with primers specific to each serotype and collagen-binding proteins. The study found serotypes c (84 percent), e (3 percent) and k (11 percent), with no serotype f observed. Two samples were untypeable.

Although the bacteria evaluated in this study were all missing the collagen-binding proteins suggested to link *S. mutans* serotype k and systemic disease, some scientists propose these genes may be acquired over time or that these organisms could have other unknown proteins possibly associated with systemic disease.

S. mutans is frequently associated with the formation of cavities. There are four known serotypes (c, e, f and k) that colonize humans, of which minor oral serotypes f and k are reported least often (less than 5 percent of the time). The purpose of this study was to determine the serotypes of 100 randomly selected *S. mutans* bacterial isolates and then determine whether these isolates possess two collagen-binding proteins, Cnm and Cbm, reportedly associated with systemic disease.

Momeni says further study is needed to determine if the *S. mutans* serotype k strains found in this study have other invasive qualities associated with systemic diseases. Furthermore, she adds, the prevalence of serotype k reported in this study may be conservative since only individual bacterial isolates were tested. This number could be considerably higher when more oral isolates are analyzed from each individual

Provided by American Society for Microbiology

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