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Forum for Interface Oral Health Science

**Scardovia wiggsiae and its potential role
as a caries pathogen**

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Studies have shown that while *Streptococcus mutans* is strongly associated with childhood caries it is not always detected in disease sites. Clinically, *Scardovia wiggsiae* has been significantly associated in a population with severe-early childhood caries (SECC) in addition to *S. mutans*. Further, in the SECC population *S. wiggsiae* was caries-associated in the absence of *S. mutans*. In initial caries, *S. wiggsiae* and *S. mutans* were both elevated in white spot lesions in adolescents with fixed orthodontic appliances.

In *in vitro* studies, *S. wiggsiae* is acidogenic and acid-tolerant. Multiple isolates of *S. wiggsiae* from children with SECC were highly acidogenic and strains were isolated at significantly higher frequency from a low pH, rather than neutral pH agar. The acid tolerance of selected isolates was confirmed. *S. wiggsiae* isolates were acidogenic from several sugars at low initial pH values, and were not arginine deiminase positive, characteristics consistent with cariogenic potential of this species.

Cariogenicity of *S. wiggsiae* was tested *in vivo* in a rat animal model in parallel with *S. mutans*. While *S. wiggsiae* as a single inoculation showed minimal caries induction, when co-infected with *S. mutans*, there was significant cavity production, and *S. wiggsiae* was observed invading dentin tubules.

These studies indicate that *S. wiggsiae* has several key cariogenic characteristics. It is significantly associated with advanced and initial caries in children. *S. wiggsiae* produces acid to lower pH at neutral and low pH starting conditions, and is acid tolerant. In combination with *S. mutans*, *S. wiggsiae* was detected in caries in an animal model. Together, these data suggest that *S. wiggsiae* has many of the characteristics of a caries pathogen.

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