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.