

**PEDIATRIC DENTAL JOURNAL** International Journal of  
Japanese Society of Pediatric Dentistry  
The Japanese Society of Pediatric Dentistry

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ONLINE ISSN : 1880-3997

PRINT ISSN : 0917-2394

## Pediatric Dental Journal

Vol. 15 (2005) , No. 1 pp.127-133

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### ***Streptococcus mutans* sortase catalyzes cell wall anchoring of WapA and FruA**

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(Received on October 8, 2004)

(Accepted on December 21, 2004)

**Abstract** Previous studies using a sortase-deficient mutant (SrtA<sup>-</sup> mutant) of *Streptococcus mutans* have demonstrated that the sortase (SrtA) catalyzes cell wall anchoring of the surface protein antigen Pac, a dextranase and a glucan-binding protein C. In this study, cell wall anchoring of a wall-associated protein antigen A (WapA) and an exo- $\beta$ -D-fructosidase (FruA) in *S. mutans* was examined by Western blot analysis with a specific antiserum. In the SrtA<sup>-</sup> mutant, FruA and WapA were not bound to the cell wall but were secreted into the culture supernatant. In contrast, in the wild type, both proteins were associated with the cell wall of *S. mutans*. Biological properties of the SrtA<sup>-</sup> mutant were examined by determination of fructan fermentation and adherence to a smooth surface. Both the SrtA<sup>-</sup> mutant and the wild type retained the ability to ferment levan. In addition, adherence to a smooth surface of the SrtA<sup>-</sup> mutant was as extensive as that of the wild-type 109c when sucrose was present. However, in the absence of sucrose, the adhesion of the SrtA<sup>-</sup> mutant remarkably decreased as compared with that of the wild type. These results suggest that SrtA catalyzes anchoring of WapA and FruA to the cell wall in *S. mutans* and that surface proteins anchored by SrtA are involved in the initial adhesion of *S. mutans* to smooth surface. In addition, it was shown that both cell wall-anchored and extracellular FruA are related to the degradation of extracellular fructan as a nutrient source.

**Key words** FruA, Sortase, Sorting signal, *Streptococcus mutans*, WapA

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To cite this article:

Chieko Murai, Takeshi Igarashi, Mitsuko Inoue and Ryuji Sasa: *Streptococcus mutans* sortase catalyzes cell wall anchoring of WapA and FruA . *Ped Dent J* **15**: 127-133, 2005 .

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