

論文名 : Sulfated vizantin causes the detachment of biofilms composed mainly of the genus *Streptococcus* by modulating microbial adhesion. (要約)

新潟大学大学院医歯学総合研究科

氏名 長谷川 泰輔

Sulfated vizantin (Viz-S), a recently developed immunostimulant, has been found to also have antibiofilm properties. It acts not as a bactericide but promotes detachment from a basal surface by reducing the stability of the biofilm structure. This study aimed to demonstrate the mechanism associated with this activity and discover if there is species specificity by utilizing, *ex vivo*, two distinct oral biofilm models derived from human saliva. From these two distinct oral biofilm models, the biofilm, composed mainly of the genus *Streptococcus* and containing 50 μ M of Viz-S, detached significantly from a basal surface by using a rotating motion at 500 rpm for only 15 s even when 0.2% sucrose was supplied. Analysis for gene expressions related to bacterial adhesion, following the identification of the *Streptococcus* species, revealed that a variety of *Streptococcus* species in a cariogenic biofilm showed downregulation in genes that encode *gtfs*, especially *gtfR* in *S. oralis*, which showed 0.54-fold downregulation, and *gtfG* in *S. gordonii*, which showed 0.37-fold downregulation. The expression of some genes that encode surface proteins were also downregulated. 50 μ M Viz-S decreased the hydrophobicity of the cell surface non-specifically by binding to the cell surface, resulting in reduced bacterial adherence. Viz-S may be a candidate for a new antibiofilm strategy targeting the biofilm matrix, while preserving resident microflora.