Reversing Tooth Decay with Biomimetic Peptide Gel

CLINICAL NEED
Deminerlization in tooth is often the cause of various dental concerns including dental cavities and hypersensitivity. The currently available commercial products with claims for remineralization properties aim to stabilize calcium and phosphate to deliver a high dosage of the ions to the oral cavity. Because this process is an indirect approach to mineralization, it cannot direct and catalyze mineral formation on the tooth surface, thereby limiting their clinical and long-term effectiveness.

SOLUTION
To address this need, a team of researchers at the University of Washington, led by Prof. Mehmet Sarikaya and Dr. Hanson Fong, has developed a peptide-containing gel to direct primary biomineralization of the lost dental tissues to treat tooth decay and other dental ailments caused by demineralization. The peptides have been demonstrated to form calcium phosphate minerals of controlled structural characteristics, forming stable layers of deposited mineral on extracted human and rat teeth, both on dentin and on enamel.

COMPETITIVE ADVANTAGE
This gel formulation is expected to be topically applied on the carious teeth with early stage tooth decay to restore mineral on the affected surface. As with the currently used fluoride varnish, this gel would also be applied in dentist’s office. While the fluoride varnish does not actively add new mineral to the tooth surface, the active, mineralizing gel will serve as an effective procedure to reverse cavity progression.

ITP SUPPORT
With the overall objective to develop a user-friendly prototype product for the permanent treatment of demineralization-driven conditions including dental caries and hypersensitivities, the ITP program will be supporting the continued validation of the peptide-containing gel formulation for guided remineralization and exploration of FDA regulatory and OTC and clinical marketing strategies.

CLINICAL TRANSLATION PATHWAY

Publications:

Intellectual Property:
US 9,809,633 Reagents and Methods for Treating Dental Disease
PCT/US2017/013492 Reagents and Methods for Mineralization of Tooth Enamel

Regulatory Pathway:
In development with the MPWRM Regulatory Core

Commercialization Strategy:
In development with the MPWRM Commercialization/Market Needs Core

Product Launch Strategy:
In development with the MPWRM Commercialization/Market Needs Core

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