The dental pharmaceutical company in Korea provides effective treatment options for dentin hypersensitivity, tooth decay, and periodontitis.They are interested in licensing out, collaborative research on its dental assets, establishing a joint venture.

Summary

Profile type	Company's country	POD reference
Technology offer	**South Korea**	**TOKR20230504001**
Profile status	**Type of partnership**	**Targeted countries**
PUBLISHED	**Investment agreement** **Research and development cooperation agreement** **Commercial agreement with technical assistance**	**• World**
Contact Person	**Term of validity**	**Last update**
Rita Elste - Tomsone	**4 May 2023** **3 May 2024**	**7 May 2023**

General Information

Short summary

Their synthetic peptide, Selcopintide, is a novel, 10-amino acid peptide from an amino acid sequence of highly conserved human Copine protein family (specifically, CPNE7), which can activate odontoblasts to restore physiological dentin. This core technology is used to treat dentin hypersensitivity and dental caries.

Full description

KH001 - Dentin hypersensitivity
1. When dentinal tubules are exposed, odontoblasts in the dentinal tubules come into contact with external stimuli, such as hot or cold temperature and pressure. This contact triggers pulp nerves and leads to sharp pain known as dentin hypersensitivity.
2. Activated odontoblasts secrete dentin matrix to the intratubular dentinal tubules and occlude them. As a result, the dentin is restored back to its original state. This is the world’s first hypersensitivity treatment using their physiologic dentin regeneration.
3. Pre-existing treatments were to externally block the dentinal tubules using nonphysiologic dentin materials. In this case, outward hydrostatic pressure in the dentinal tubules causes the restorative materials to fall out.
4. However, treatment with Selcopintide regenerates the native dentin layer, filling in the exposed area and

withstanding the pressure. Using this technology, they believe it is possible to fundamentally treat dentin hypersensitivity.

KH002 - Dental caries
1. When Selcopintide is applied to the exposed cavity area, the water-soluble peptide stably permeates into the dentinal tubules without breaking down from bacteria or acidic environment, and successfully activating odontoblasts.
2. The activated odontoblasts block bacteria and toxins by secreting dentin to the intratubular dentinal tubules.
3. It also causes physiologic dentin formation beneath the original one in response to the damage from various stimuli.
4. Thus Selcopintide treatment can minimize irritation and damage to the pulp.
5. All in all, postoperative hypersensitivity can be reduced, resulting in satisfaction of both medical staff and patients.

KH201 peptide is a novel, 10-amino acid peptide from amino acid sequence of highly conserved human Copine protein family (specifically, CPNE7), which activates periodontal ligament fibroblasts (PDL fibroblasts) to generate periodontal ligament and cementum regeneration.

1. The periodontal ligament (PDL) is a connective tissue located between the cementum and the alveolar bone.
2. The most unique function of the PDL is to provide attachment of the teeth to the surrounding alveolar bone to support or resist mechanical forces.
3. But once the periodontal ligament (PDL) is damaged, it is difficult to regenerate its characteristic structure

KH201 peptide activates periodontal ligament fibroblast activation which induces:
1. Periodontal ligament regeneration & functional alignment
2. Re-adhesion to cementum & alveolar bone
3. Restoration & maintenance of periodontal tissue & tooth function

The Copine protein-derived peptide developed by them has shown therapeutic potential in derma-related indications.

HB401 - Anti-aging
HB401 peptide has shown an anti-aging effect by increasing collagen formation as well as filaggrin and involucrin in dermal fibroblast.

1. Filaggrin plays an important role in the skin's barrier function as it brings together structural proteins in the outermost skin cells to form tight bundles, flattening and strengthening the cells to create a strong barrier.
2. Involucrin is synthesized in the stratum spinosum and cross-linked in the stratum granulosum by the transglutaminase enzyme that makes it highly stable. It provides structural support to the cell, thereby allowing the cells to resist various invasions by micro-organisms.

HB501 - Vitiligo
Vitiligo is a long-term condition where pale white patches develop on the skin. It is mainly caused by the lack of melanin, which is the pigment in the skin.

They have also developed a peptide that can treat vitiligo by increasing tyrosinase activity and melanin secretion in melanocytes.

Advantages and innovations

Dentin Hypersensitivity
- Compared to one of the most used products in the market that only blocks the dentinal tubules instead of regenerating the damaged dentin, its peptide not only occludes the dentinal tubules but also regenerates the dentin, thus providing more pharmaceutical effects

Liner or base for dental caries
- Compared to most common products in the market, its peptide is safer and non-toxic to pulp cells. It also regenerates damaged odontoblast present in dentin, restoring caries-affected dentin

Periodontitis
- Its peptide treats the affected periodontal ligament and cementum thus restoring the aged/ damaged periodontium.

Technical specification or expertise sought

Stage of development

Available for demonstration

IPR Status

IPR granted

Sustainable Development goals

- **Goal 3: Good Health and Well-being**

Partner Sought

Expected role of the partner

They are interested in licensing out, collaborative research on its dental assets, establishing a joint venture.

They are also interinsted in Commercial agreement, Outsourcing agreement, Supplier agreement, Investment agreement.

Type of partnership

Investment agreement

Research and development cooperation agreement

Commercial agreement with technical assistance

Type and size of the partner

- **University**
- **SME 50 - 249**
- **R&D Institution**
- **SME 11-49**

Dissemination

Technology keywords

- **06001004 - Dentistry / Odontology, Stomatology**

Market keywords

- **05005018 - Medical Physics, Physiology**
- **05005017 - Dentistry / Odontology, Stomatology**

Targeted countries

- **World**

Sector groups involved