Innovative healthcare technology corporation offers peptide technology to treat chronic autoimmune diseases such as inflammatory bowel disease (IBD).

Summary

Profile type
Technology offer

Company's country
South Korea

POD reference
TOKR20230511004

Profile status
PUBLISHED

Type of partnership
Commercial agreement with technical assistance

Targeted countries
• World

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Term of validity
11 May 2023
10 May 2024

Last update
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General Information

Short summary

The company identified 426 peptides as innovative pharmaceutical candidates, which are in progress as main R&D pipelines. The most advanced peptide program is NIPEP-IBD for treating inflammatory bowel disease (IBD). The other asset is NIPEP-PF for treating pulmonary fibrosis, and it can reduce the excessive formation of extracellular matrix by inhibiting latent TGF-beta 1 release.

Full description

The company was established in 2004, and it is a spin-off venture company from Seoul National University. The R&D institute is located in Seoul, and the manufacturing facility for medical devices, drugs, and peptides is in Jincheon. The company was listed in Korean Stock Market in 2011 based on peptide-based platform technology, named TOPSsovery (Target-oriented peptide delivery and discovery) technology.
The company has three business areas. The first is a drug delivery platform, the second is peptide therapeutics, and the last is biomaterials and peptide fusion biomaterials.

The drug delivery platform has three divisions. One is peptide-based intracellular delivery (NIPEP-TPP), peptide-based brain delivery (NIPEP-TPP-BBB shuttle), and formulation platform. A dental bone graft derived from bovine and equine bone, collagen sponge, and porcine-derived pericardium membrane was developed for biomaterials. They are registered in Korea, FDA, CE, Canada, China, Australia, and other countries. The peptide therapeutic

programs are regenerative areas for the treatment of inflammatory bowel disease and for the treatment of osteoporosis. The second area is anti-fibrosis for treating pulmonary fibrosis and NASH treatment. The third area is oncology for KRAS targeting and anti-VEGF targeting. The fourth area is anti-viral and inflammatory treatment. The most advanced peptide program is NIPEP-IBD for treating inflammatory bowel disease (IBD). NIPEP-IBD was completed phase I study in Australia. The other asset is NIPEP-PF for treating pulmonary fibrosis, and it can reduce the excessive formation of extracellular matrix by inhibiting latent TGF-beta 1 release. The company has a peptide cGMP manufacturing facility and can provide peptides as active pharmaceutical ingredients.
The company wants to find the partners in US or Europe that license the peptide programs, including Big Pharma or a biotech company that can conduct clinical studies and further license to third parties.

The company can provide CDMO service to other biotech who develop their peptide drug and need GMP grade peptide. In addition, the company wants to find partners who can distribute its biomaterials.

Advantages and innovations

Among the peptide programs, NIPEP-IBD is the most advanced program. The number of people diagnosed with inflammatory bowel disease (IBD) is increasing. An estimated 3 million US adults were diagnosed with IBD in 2015, whereas the number of IBD patients was only 1.8 million in 1999. As the number of IBD patients increases, the health-economic burden associated with the disease also increases. Most importantly, no medications have yet reported complete remission for IBD patients.

NIPEP-IBD, 19 amino acid sequenced peptide, was designed to bind to selectively to integrin beta one expressed on the wound epithelium. This way, the peptide primarily travels to the target wound epithelium to distribute off-target site. The mode of action of the NIPEP-IBD after binding with integrin beta one is described.The NIPEP-IBD has been found to be highly effective in epithelial restitution via FAK-Rho signaling pathway, as confirmed from the in vitro cell study using Caco-2 and HT-29 epithelial cells. The regenerative biomarker of epithelium including ZO-1, Occludin, Claudin-5 was significantly increased by the treatment of NIPEP-IBD in the experimentally created IBD in vitro model. The animal study with both acute and chronic IBD model further confirmed that the NIPEP-IBD, when subcutaneously injected, demonstrated significant improvement of the recovery as compared with the positive control, i.e., TNF-a antibody, with marked mucosal regeneration as reflected by histologic observation. Aside that the s.c. injectable NIPEP-IBD is developed for providing severe-moderate patient either in the hospital (after surgery) or at home, the development of the orally available formulation of NIPEP-IBD is also required for the patient who cannot visit hospital daily. By having both medications such as injectable and oral medication, it is anticipated that the broad spectrum of the patients can be benefited by NIPEP-IBD. The objective of the IBD project was to optimize an orally administrated.

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

The expected role of the partner is that this company is seeking a partner that can co-develop or in-license its peptide technology. One of its leading peptide assets is the NIPEP-IBD, which has completed its phase 1 human clinical study. Therefore this company looks for the role to take care of the following clinical study with expertise in clinical science and commercialization.

Type of partnership

Commercial agreement with technical assistance

Type and size of the partner

- **Big company**
- **SME 50 - 249**

Dissemination

Technology keywords

- **06001013 - Medical Technology / Biomedical Engineering**
- **006001007 - Diseases**
- **06001012 - Medical Research**
- **006001002 - Care and Health Services**

Market keywords

- **05005008 - Internal medicine**
- **05005018 - Medical Physics, Physiology**
- **05005022 - Other clinical medicine**

Targeted countries

- **World**

Sector groups involved