

June 10, 2019

## **Toyobo obtains government approval to produce and sell bone regeneration inducing material Bonarc™**

Toyobo Co., Ltd. obtained approval from the Ministry of Health, Labor and Welfare to produce and sell Bonarc™, a material for regenerating bone, on May 29, 2019. Toyobo, which successfully commercialized Bonarc™ in a joint project with Tohoku University, plans to start selling the product for dentistry and oral surgery within fiscal 2019.



Bone regeneration inducing material Bonarc™

Bonarc™ is made of a composite of octacalcium phosphate (OCP) and collagen for medical use, and was jointly developed by Sendai-based Tohoku University and Osaka-headquartered NH Foods Ltd. with the aim of inducing bone regeneration. It is a medical device processed into a sponge-like disk that is implanted on a bone defect caused by disease, injury or aging, activating the regenerative capacity of surrounding cells and serving as a scaffold to induce new bone formation.

Toyobo signed a patent license agreement on Bonarc™ with Tohoku University and NH Foods in 2015, after which it conducted joint clinical trials at Tohoku University Hospital (TUH) and eight other medical institutions across Japan, with TUH playing a leading role. The first clinical test to reconstruct bone on the alveolar cleft of patients suffering from cleft lip and cleft palate was conducted in addition to trials on patients requiring bone regeneration for dental implants or with cystic cavities. These trials confirmed the product's efficacy and safety in bone regeneration, which resulted in the ministry's approval.

Conventionally, bones were regenerated through autogenous bone grafting, in which the patient's own healthy bone is harvested and transplanted onto a bone defect. However, this procedure requires a rather lengthy hospitalization for treatment and sometimes causes pain in the section where the healthy bone was harvested. Therefore, trying to reduce the burden placed

on patients has become a priority.

Bonarc™ can be easily implanted on a bone defect and induce formation of new bone possessing properties equivalent to surrounding bone. Using Bonarc™ lessens the burden and improves the quality of life for patients because it can shorten the length of hospitalization, compared with that required for an autogenous bone graft, and also makes post-surgery exercise restrictions unnecessary.

Toyobo plans to select a sales agent within fiscal 2019 and start selling Bonarc™ for dentistry and oral surgery. It also aims to expand the scope of its applications to orthopedics, brain surgery and other domains.

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