April 3rd, 2026

Press Release

TamaBio Co., Ltd.

Tohoku University

Joint Research Enters a New Stage

Verification of the Usefulness of Artificial Synthetic Biomembrane Implantation in Neurological Function Recovery After Brain Contusion, Spinal Cord Injury, and Cerebral Infarction Begins

- Promoting Industry-Academia Open Innovation, Including the Interdisciplinary Integration of Medicine, Pharmacy, and Engineering in the Healthcare Industry, for the Creation of Innovative Next-Generation Medical Treatments

【Summary】

- Tohoku University and TamaBio Co.,Ltd. will advance their joint research aimed at restoring neurological function after brain contusion, spinal cord injury, and cerebral infarction using artificially synthesized biomembranes to a new stage.
- Animal experiments, including studies using a cerebral infarction model, have yielded promising results regarding the restoration of neurological function, suggesting the potential for developing new treatment methods.
- Based on these research results, patents for tissue regeneration therapy sheets and regenerative therapy

methods have been obtained in Japan, and an international patent application is currently pending.

Going forward, the aim is to verify the effectiveness and safety using animal models that are closer to clinical settings, and to commercialize innovative treatment methods for brain and spinal cord injuries.

【Overview】

Professor Kuniyasu Niizuma of the Graduate School of Biomedical Engineering (and Graduate School of Medicine), Tohoku University (located in Sendai City, Miyagi Prefecture), and TamaBio Co.,Ltd. (Headquarters: Musashino City, Tokyo; Representative Director: Tetsuya Nagao; hereinafter "TamaBio") originally signed a joint research agreement on July 1, 2022, regarding "Development of innovative medical materials by advancing autologous cell tissue onto the surface of artificially synthesized biomembranes." Furthermore, on January 12, 2024, they signed another joint research agreement for "Development of innovative medical materials by advancing autologous cell tissue onto the surface of artificially synthesized biomembranes," further advancing the research toward device development. Now, they have signed a third joint research agreement to begin a new stage, "Verification of the usefulness of artificially synthesized biomembrane implantation in the recovery of neurological function after cerebral contusion, spinal cord injury, and cerebral infarction," with a view to commencing clinical trials.

In animal experiments using a stroke model mouse, the artificially synthesized biomembrane developed by TamaBio demonstrated therapeutic effects in repairing

damaged brain tissue, showing effectiveness in restoring nerve function. We believe this represents a significant step towards establishing a treatment method for stroke and developing a therapeutic device for it in the future.

Based on these results, we obtained a patent in Japan in 2024 for a tissue regeneration therapy sheet including brain nerve tissue, and for a regenerative therapy method. We are currently applying for an international patent.

In light of these progress toward a new stage, Tohoku University and TamaBio have entered into a third joint research agreement to further advance this collaborative research toward clinical use. Since the effectiveness of this device is expected to be demonstrated in various brain and spinal cord injury cases, including stroke, we will conduct research using animal models that more closely resemble human clinical settings. In addition to evaluating nerve function and histological evaluations, we also plan to conduct biochemical and molecular biological evaluations.

After evaluating the effectiveness and safety in animal models, we plan to conduct clinical trials. While conducting clinical trials requires careful consideration of both efficacy and safety, this device can be considered to have a safety level equivalent to devices with a track record of implantation in humans in over 6,000 cases.

Currently, effective treatments for diseases such as cerebral infarction and spinal cord injury are limited, making it difficult to fundamentally improve patients' quality of life. This collaborative research aims to

establish a breakthrough treatment method for these conditions and develop this innovative device.

<About TamaBio>
Established: April 2016
Representative Director: Tetsuya Nagao
Business: Medical device manufacturing / Type 1 manufacturing and distribution

Development, manufacturing, and distribution of DuraBeam® (Class IV highly controlled medical device, artificial dura mater)

Development, manufacturing, and distribution of PeriBeam® (Class IV highly controlled medical device, prosthetic material for artificial pericardium)

Development, manufacturing, and distribution of other synthetic artificial biomembranes

TamaBio was established in April 2016, using the RIKEN's technology for special processing of polymer resins as its practical foundational technology. TamaBio has obtained manufacturing and marketing approval from the Ministry of Health, Labour and Welfare for its artificial dura mater "Durabeam®" (manufacturing and marketing approval number: 22900BZX00291000, Class IV highly controlled medical device) and the pericardial prosthesis "Peribeam®" (manufacturing and marketing approval number: 23000BZX00360000, Class IV highly controlled medical device), and has obtained core patents in Japan, the United States, China, and other countries. Furthermore, the pericardial prosthesis "Peribeam®" received manufacturing and marketing approval from the U.S. Food and Drug Administration (FDA) in April 2025 (510(k) No. K240775), and sales have commenced in the United States.

"DuraBeam®" is sold domestically by Gunze Medical Co., Ltd. (Headquarters: Kita-ku, Osaka; President: Shojiro Matsuda), a consolidated subsidiary of Gunze Corporation (Headquarters: Kita-ku, Osaka; President: Toshiyasu Saguchi), and "PeriBeam®" is sold domestically by JMS Co., Ltd. (Headquarters: Naka-ku, Hiroshima; President: Ryuji Katsura), among others.

In addition to the artificial dura mater "DuraBeam®" and the artificial pericardium "PeriBeam®," TamaBio is promoting the development of artificial organs and regenerative medicine technologies in fields that are more critical and expected to yield high results. While medical devices such as implants are being developed worldwide as functional replacements for lost organs in patients, various adverse events such as postoperative infections, adhesion with the patient's own tissue, and calcification due to prolonged use remain challenges in clinical practice. TamaBio products have high biocompatibility, and through its processing technology, it aims to overcome these challenges and continuously deliver newly developed products to patients.

Furthermore, Tama Bio is also pursuing international expansion, including obtaining regulatory approvals overseas and establishing international business partnerships. Through this joint research, both parties aim to expand the results of their innovative medical technologies not only domestically but also globally.

<About Tohoku University Open Innovation Business Strategy Organization>
Established in December 2018, the organization aims to create innovations with significant social impact by forming a B-U-B (Business-University-Business) model innovation ecosystem with the university at its core and

participation from multiple companies.

https://www.tohoku.ac.jp/japanese/2018/12/press-20181213-02-OI.html

For more information please contact :

Tohoku University Open Innovation Business Strategy Organization
TEL: +81-22-718-0350
e-mail: oi-shien@grp.tohoku.ac.jp

TamaBio Co., Ltd.
TEL: +81-422-53-5051
Contact Person: Masashi Mizoguchi
e-mail: m.mizoguchi@tamabio.com