

# Academia × REBORN

## —Harmony between Academia & Society, between Theory & Practice—

Reborn Challenge  
Implementation Body

Kansai University

Under the theme "The Potential for Innovation Created by University x Companies," and focusing on keywords such as SDGs and carbon neutrality, Kansai University will create an exhibition space that embodies the synergy between universities with cutting-edge education and research resources and the technological capabilities of Osaka's small and medium-sized startups. This synergy aims to contribute to the creation of a bright and sustainable future society.

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Special Website

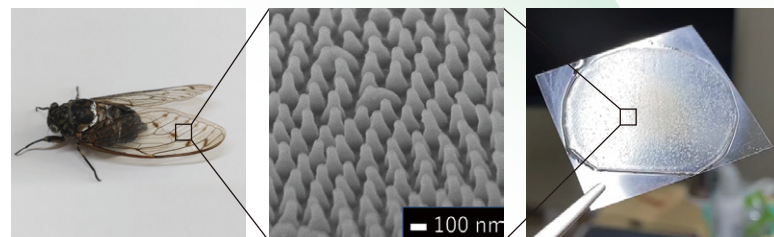


### Innovative antibacterial technology "Nanospikes"

#### NanoSpike Inc.

The new material "Nanospikes" is composed of nano-sized protrusions. It can perform bactericidal and antibacterial processing with its physical properties, so it can be used as an antibacterial, water repellent and antifouling material that does not use chemical substances. Conventional antibacterial and antibiotic agents that use a chemical action have the issues that they place a burden on the environment and have a risk of adverse effects on the human body. "Nanospikes" is an innovative material that overcomes these disadvantages. We aim to use this new antibacterial technology to realize an affluent society free of infectious diseases. At the expo, we will exhibit a resin film that is equipped with "Nanospikes."

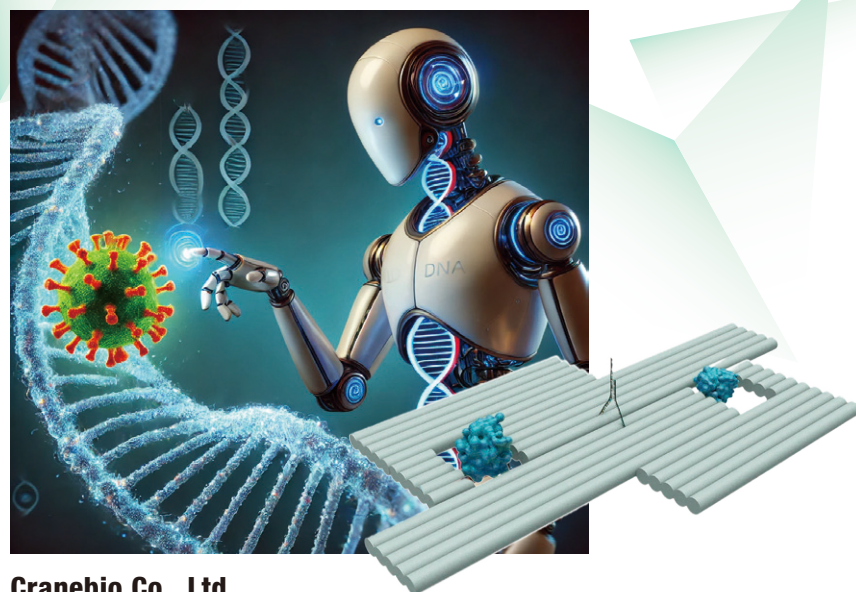
The same nanospike structure as on a cicada wing



Bacteria and viruses die  
on the nanospikes



### DNA origami nanorobots that will lead advances in medicine 50 years from now



#### Cranebio Co., Ltd

DNA origami nanorobots have the potential to play various roles such as in the early detection and treatment of pathogens. We aim to use this nanorobot technology to create a future where anyone can easily test for diseases, even if they do not have any specialized knowledge or expensive equipment. At the Expo, we will introduce future medical technologies for detecting bacteria and viruses to the visitors by exhibiting our "DNA origami nanobots." These are created using DNA origami technology to fold DNA molecules into minuscule structures (about 1/500 the thickness of a hair) and are so small that they cannot be seen by the naked eye.



### Autonomous Driving Race Championship in Digital Space !

#### Virtual Motorsport Lab Inc.

Virtual Motorsport Lab offers a simulator that enables users to experience the development of autonomous racing cars. We host autonomous driving race championships in a virtual space, allowing participants from across Japan and around the world to join online. Through these races, participants can enjoy learning about AI and mobility technologies in a competitive and engaging environment. At Expo 2025, we will collaborate with Horiguchi Lab at Kansai University to showcase interactive exhibits where visitors can experience voice control and the development of autonomous racing cars. By offering hands-on experiences with cutting-edge technologies, we aim to inspire and nurture the next generation of talent in AI and mobility.



### New efforts for coral reef restoration by using AI and regenerative medicine technologies to protect the oceans of the future

#### Innoqua Inc.

Environmental transfer technology is an innovative approach that utilizes AI and IoT to recreate diverse ecosystems in water tanks. By integrating this with a titanium breeding platform inspired by regenerative medicine, we enable the efficient propagation of coral. At the venue, we will showcase an ecosystem tank that appears as if it were a direct slice of the natural ocean, demonstrating how this technology contributes to marine conservation and the future global environment. Additionally, we will introduce our efforts to achieve carbon neutrality through the utilization of blue carbon.



### Future technology that controls freezing

#### KUREI Co.,Ltd.

There are various problems associated with freezing in cold regions, including that "roads freeze and become slippery," "the attachment of snow makes traffic lights and signboards unreadable," and "late frosts mean that flowers cannot grow into fruit." It is possible that these problems may be solved by reducing the size of the ice crystals. In the exhibition, we will introduce future measures for cold areas to prevent the problems of freezing by using technology to control freezing. This technology uses an "ice crystal control function" that controls the process from the generation of ice nuclei to the growth of ice crystals.

### Sew three-dimensional objects at home! The sewing machine of the future

#### AXE YAMAZAKI CO.,LTD.

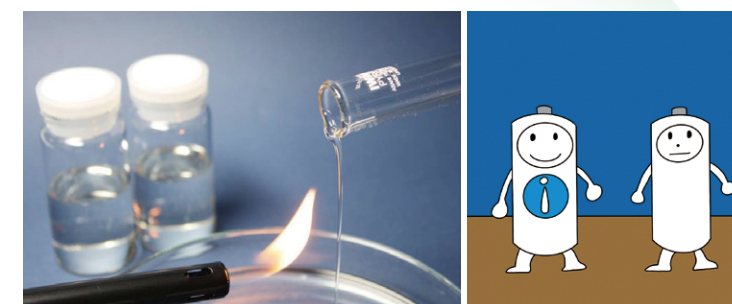
We will introduce the MIRAI Sewing Machine, which utilizes the patented "tag stitch technology" of Toyota Auto Body to sew three-dimensional objects that have not been possible with conventional household sewing machines. We focused on the advantages of this technology, which is used to directly apply decorative sewing to interior parts for automobiles, and made it possible to directly sew three-dimensional objects such as sofas. We will create a future where it will be possible to repair a tear on a space suit while the suit is still being worn.



### A sustainable society realized by circular economy batteries

#### iElectrolyte Co., Ltd.

At the venue, our original characters the "IL Battery Brothers" will give a fun introduction to the IL (Ionic Liquid) batteries that are currently under development. This will include regarding the safety of the batteries, as the liquid does not evaporate so it does not burn even when a flame is brought close to it, and regarding the practical use of the batteries in special environments such as outer space. We will also exhibit our efforts to realize circular economy batteries, where the batteries can be recycled without being disposed of, by using parts that utilize natural materials and manufacturing technologies that reduce environmental impact.



### Connecting Muslim tourists with restaurants in Osaka and Kansai



#### Goenjin inc.

The Osaka and the Kansai areas are known as places where you can "eat till you drop" in "the kitchen of Japan" and they are places with a high concentration of food culture attractions. However, for Muslims, a lack of consideration and information can mean that they sometimes feel restricted when it comes to sightseeing and eating. We want Osaka and Kansai to also be highly attractive areas for Muslims, so we will use exhibits of food samples and the original character Sakura Fika to introduce "Muslim Smile" information related to the highly attractive foods of Kansai to the Muslim visitors to the Expo.