



## **Space BD signed the first contract for 13 space experiments of the high-quality protein crystal growth service with international 3 organizations**

**Tokyo** — Space BD announces that it has signed contracts for a total of 13 space experiments with two domestic and international companies and one research center for high-quality protein crystal growth experiments utilizing the International Space Station (ISS) Japanese Experiment Module Kibo. Space BD has been appointed as the sole partner by the Japan Aerospace Exploration Agency (JAXA) for its “Selection of Private business partner in the High-Quality Protein Crystal Growth Experiment Service” in May 2021.

In this experiment, Space BD and the three users agreed to load samples for drug discovery research on new coronaviruses and agricultural drug discovery research.

Starting with this first contract with the three organizations, Space BD will lead a wide range of activities to promote the utilization of the ISS. As a partner of JAXA, Space BD will develop a new R&D business in the life science field by integrating space utilization technology, which officially transformed from JAXA, and ground-based experimental technology.

### ■ **[Contracted company]**

#### **AgroDesign Studios / Kashiwa, Chiba**

Business: Research and development of active pesticide ingredients (active ingredient compounds) for sustainable agriculture

Purpose: AgroDesign Studios is developing molecularly targeted pesticides that directly inhibit the function of essential proteins of pests and weeds as safe pesticides. Protein shape data (three-dimensional structure) is necessary for this development. However, there are still few examples of analysis of the three-dimensional structure of proteins derived from organisms important in agriculture. The company will participate in this experiment to obtain reliable structural data.

Website: [https://www.agrodesign.co.jp/pages/2231653/page\\_201809022126](https://www.agrodesign.co.jp/pages/2231653/page_201809022126)

■ **National Synchrotron Radiation Research Center (NSRRC) / Hsinchu, Taiwan**

Business: NSRRC, the biggest large-scale shared research facility in Taiwan, currently operates two accelerators, the Taiwan Light Source (TLS) and the Taiwan Photon Source (TPS). Annually, over 2,000 domestic and international users conduct their fundamental and applied research as well as high-tech innovation using NSRRC's experimental facilities.

Purpose: Dr. Chun-Jung Chen, Deputy Director of NSRRC, and his research team participate in a space experiment to crystallize virus-like particles (VLPs), generated from *E. coli* and assembled *in vitro*, and analyze the crystals by X-ray diffraction to elucidate the structure of the virus and the mechanism of assembly and infection.

This research is expected to be helpful for the development of effective vaccines and drugs against coronavirus and other new viruses.

This agreement is a collaborative effort with HelioX Cosmos, our channel partner in Taiwan.

Website: <https://www.nsrrc.org.tw/english/index.aspx>

HelioX Cosmos(<http://www.helioxcosmos.com/wordpress/>)

■ **Laboratório Nacional de Biociências(LNBio)/Centro Nacional de Pesquisa em Energia e Materiais(CNPEM) / Sao Paulo, Brazil**

Business: Research and development of biotechnology and drugs

Purpose: To crystallize a sample of N protein which is the cased virus of a new-corona virus (COVID-19), and to understand the three-dimensional structure of the complete protein for the first time in the world by X-ray diffraction.

This agreement is a collaborative effort with Airvantis, our channel partner in Brazil. CIMED, a Brazilian pharmaceutical company, will participate as a sponsor.

Website: LNBio(<https://lnbio.cnpem.br/>)

CIMED(<https://cimedremedios.com.br/en/>)

CNPEM(<https://cnpem.br/>)

Airvantis (<https://airvantis.com/>)

## ■ About High-Quality Protein Crystal Growth Experiment Service on the ISS Kibo

This service is one of JAXA's ISS Kibo privatization initiatives. It grows high-quality protein crystals that are difficult to achieve on the ground. The high-quality crystals can elucidate the precise three-dimensional structure of proteins. It is expected to contribute to basic science and the industrial application of various life sciences such as drug discovery. As a partner, Space BD is undertaking the preparation work for the experiment and providing opportunities for the private sector to use this technology.

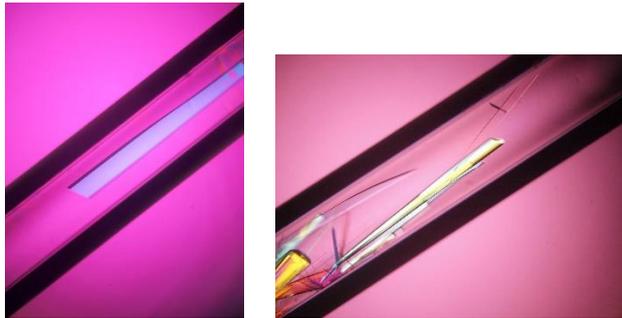


Figure 1 Protein crystals of amylase produced in the ISS (left) and on the ground (right) ©JAXA/Maruwa Foods and Biosciences



Space BD will inherit the know-how from JAXA through the contracted operational preparation for the high-quality protein crystal growth while developing the global market by improving the convenience of users and the efficiency of the experiment system, including applying the new IT system. Moreover, Space BD has partnered with MARUWA Foods and Biosciences Inc., which supports new drug development and protein structure research. This partnership makes it possible to offer a one-stop Research & Development Services for life sciences, covering space experiments and ground analysis.

More information: <https://space-bd.com/en/news/20210510.php>

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