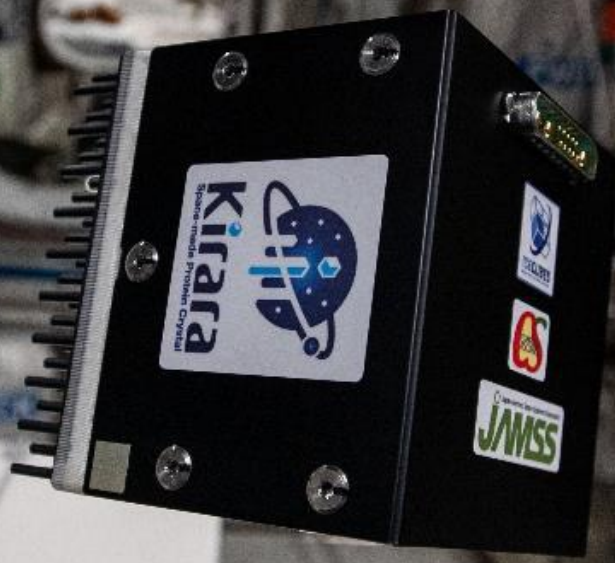




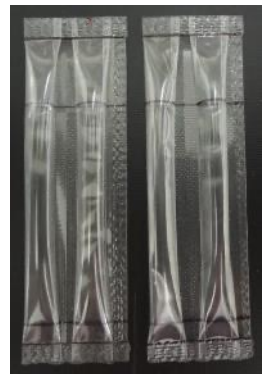
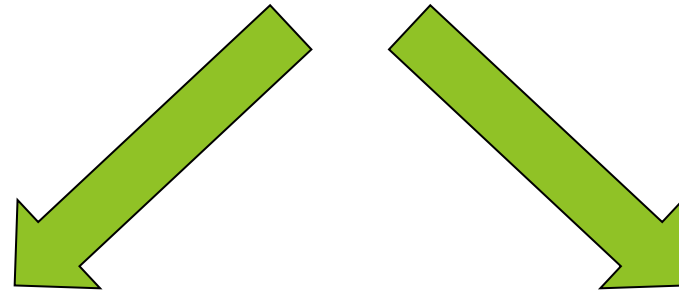
# JAMSS commercial service “Kirara” in- space production using ISS



**Naohiro Sato:**  
**Kirara Project lead**

# “Kirara” service is provided with world-wide team in LEO commercialization

- ◆ Integration of “Kirara” service
- ◆ Development of JAMSS Cube (10cm-cubic incubator)



- ◆ Provide crystallization tubes
- ◆ Optimization of protein crystallization in space etc.



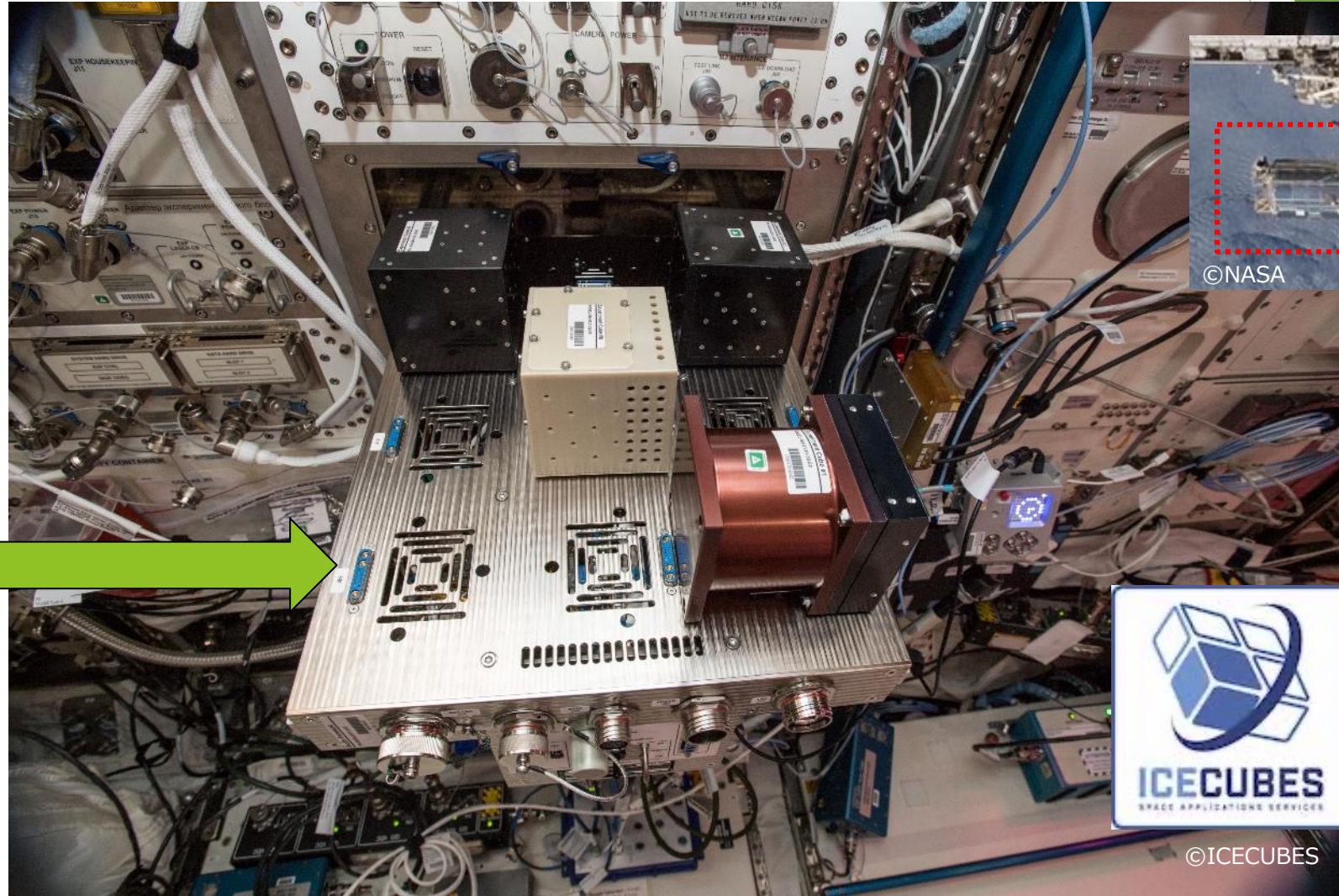
- ◆ Services of ICE Cubes Facility for JAMSS Cube
- ◆ Marketing in Europe

# JAMSS Cube is installed on ICE Cubes Facility in COL module

Small incubator  
with samples



Tubes with  
samples



## Targets of Kirara Service

- ◆ The initial idea of Kirara was to facilitate drug discovery research through high-quality protein crystallization.
- ◆ The target is now expanded beyond protein crystal growth to material synthesis in a microgravity environment.
- ◆ Initial preliminary experiments for the **synthesis of soft matter** without convection or sedimentation condition can be attempted on a very small scale with low initial costs.
- ◆ If the trial is successful, the on-board equipment can be developed and scaled up.

**Customers don't need to be specialists of the space missions but can receive outcomes from space.**



Crystals obtained in Kirara

# Kirara accomplished five missions successfully

2019

The first demonstration model of “Kirara” on SpaceX-19 was launched to the ISS



2020

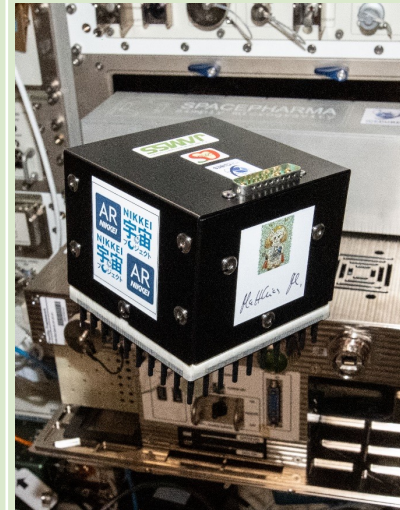
Kirara#2 with samples of the first COVID-19 drug research in space



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2021

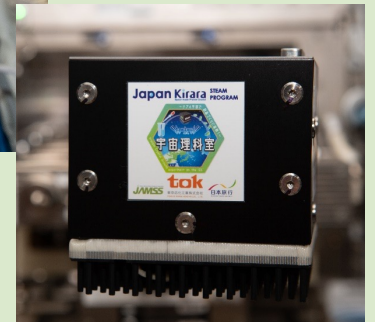
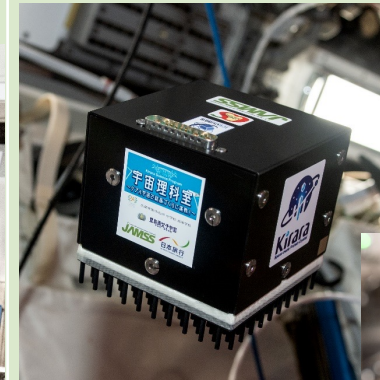
Kirara#3 with samples of Kirara STEAM program and a label prepared by school students



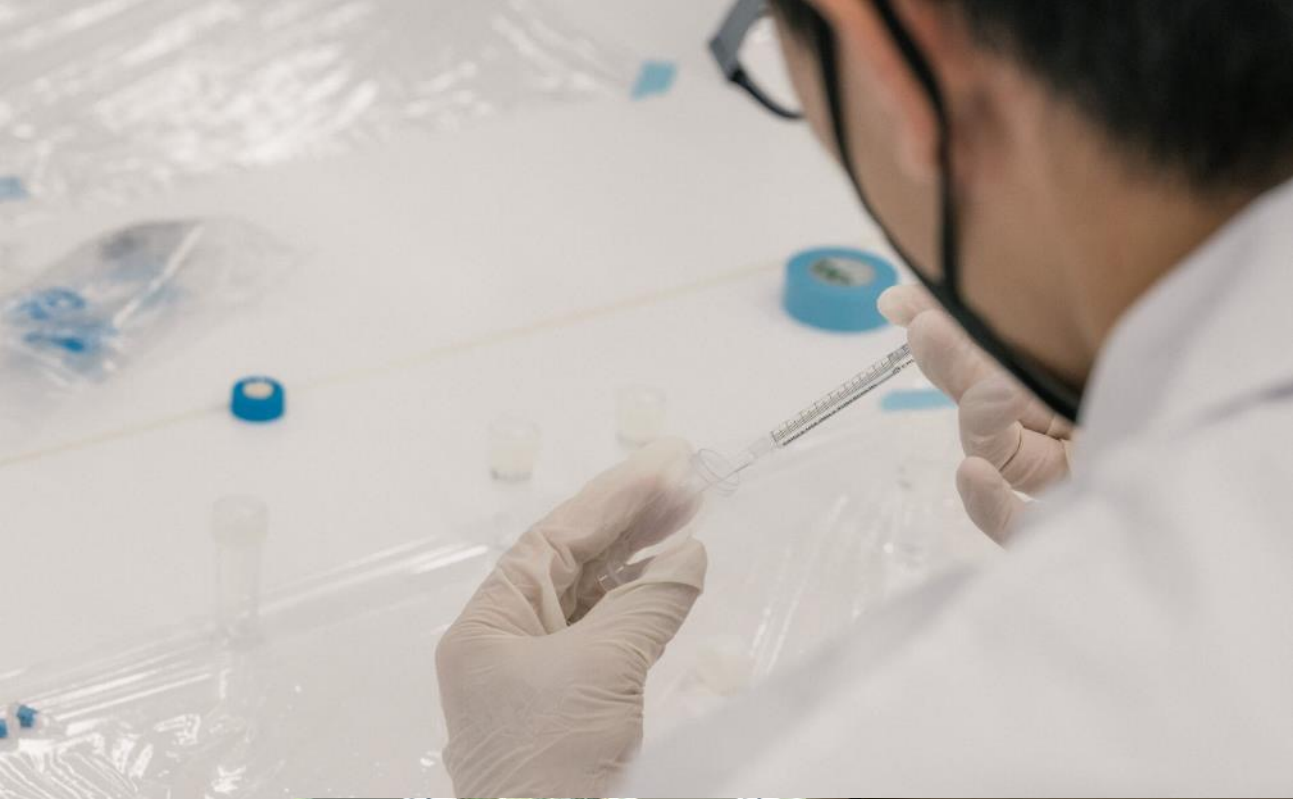
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2023

Kirara#4 (Mar.) and Kirara #5 (Nov.) with new types of experiment such as organic compound micro-crystals, production of bacterial cellulose and colloidal crystallization



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# Kirara STEAM Program

Samples filled to the crystallization tubes by school students were launched to the ISS with Kirara 6

# **Next Kirara: end of Feb. 2025 at the earliest**

For more information:



<https://www.jamss.co.jp/en/kirara/>