

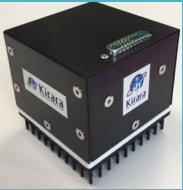
High Quality Protein Crystal Growth Service

Sample handling
after return from space

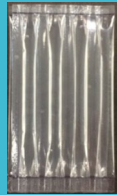


Timeline to return with frozen crystals

Crystallization



Return from ISS



Transport to Japan



R+1wk

Retrieve and freeze crystals

One to two month
(dependent on numbers and orders)

4. Return to customer

1. Crystal observation and Report

1 day

2. Send solutions for frozen crystal

Arrival due date: 2~3 days before freezing

3. Freeze crystals

1 day

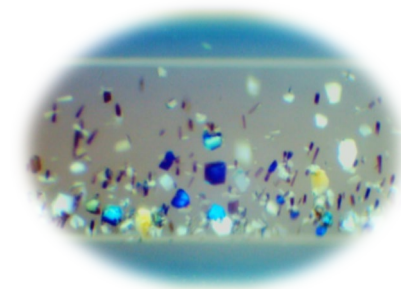
Customer shipping

*The crystal freezing requires solutions and transport equipment sent by the customer, described below.
Freezing for multiple customers is performed in the order of equipment arrival.
The period listed is reference and may change.

Crystal observation and Report

After returning, we will observe the crystal growth and report the condition to the customer before processing or freezing the crystal as follows .

1. clear
2. precipitant, amorphous, oil
3. crystal which is not suitable for X-ray diffraction experiment
4. single crystal which is suitable for X-ray diffraction experiment



We will take photos for the crystals which have rating 2 or higher of evaluation criteria above.

After consulting with the customer, if the crystal appearance appears to be applicable to X-ray diffraction experiments, we will pick out the crystals from the capillary and will freeze them.

No specific sizes are defined to pick up since it may be different in proteins.

We recommend delivering frozen crystals to transport the crystals in a stable state and avoid damage. Furthermore, skill is required to pick up crystals from capillaries.

Send equipment for frozen crystal

After we observe the crystal and inform you of the crystal formation state, please send the necessary equipment for crystal freezing to the CS's lab.

Since crystals in capillaries are usually stable, we think that you will have enough time to confirm the results of the status and then decide to send the equipment and the required number of Cryo-pins and loops.

Once you send CS's lab the transport equipment mentioned such as Dry shipper, Shipping cane, Cryo-pin etc., they will prepare for transportation including packing. You can contract a transport company and ask them to pick up the cargo at CS's lab. We usually use World Courier as carrier and custom broker. Please contact us if you have any questions.

Transport equipment:

Dry shipper (CX100, CXR500 etc.) , Dry shipper case, Shipping cane, Cryo-pin, Loop(Spin type is preferred), Cryo-vial, Uni-Puck and Solutions for frozen crystals

* Set the Uni-Pucks and shipping cane in the dry shipper, and please make sure that there is no shortage of equipment.



Send solutions for frozen crystal



We would like you to send following 4 solutions, in general, to optimize exact harvesting & cryo-solutions.

Solution	Amount	Notes
Reservoir solution	10ml	Same as the solution used in crystallization
Reservoir solution with cryo-protectant	10ml	Reservoir solution with cryo-protectant used in your-previous cryo-freezing
Buffer solution	10ml	Same as the buffer solution used in crystallization
Buffer solution with cryo-protectant	10ml	Buffer solution with cryo-protectant

But for some cases, the reservoir solution was optimized by Confocal Science Inc. (CS). Thus, we will send you a recommended composition after the sample retrieval.

In addition, please refer to High Quality Protein Crystal Growth Service Application Guide.



* Please be aware of the transportation conditions such as the amount of dry ice.

X-ray diffraction

We are preparing options for X-ray diffraction using Diamond Light Source (DLS) at Didcot (Oxford, UK).

Please refer to the following site for DLS information:

<https://www.diamond.ac.uk/Instruments/Mx/I04-1/I04-1-Manual/Sample-Holders/Pucks-and-pins.html>

Cryo-pins

The followings are preferable for us:

- HamptonResearch HR8-118 to 132 CrystalCap SPINE HT:

<https://hamptonresearch.com/product-CrystalCap-SPINE-HT-445.html>

- Molecular Dimensions CryoCaps:

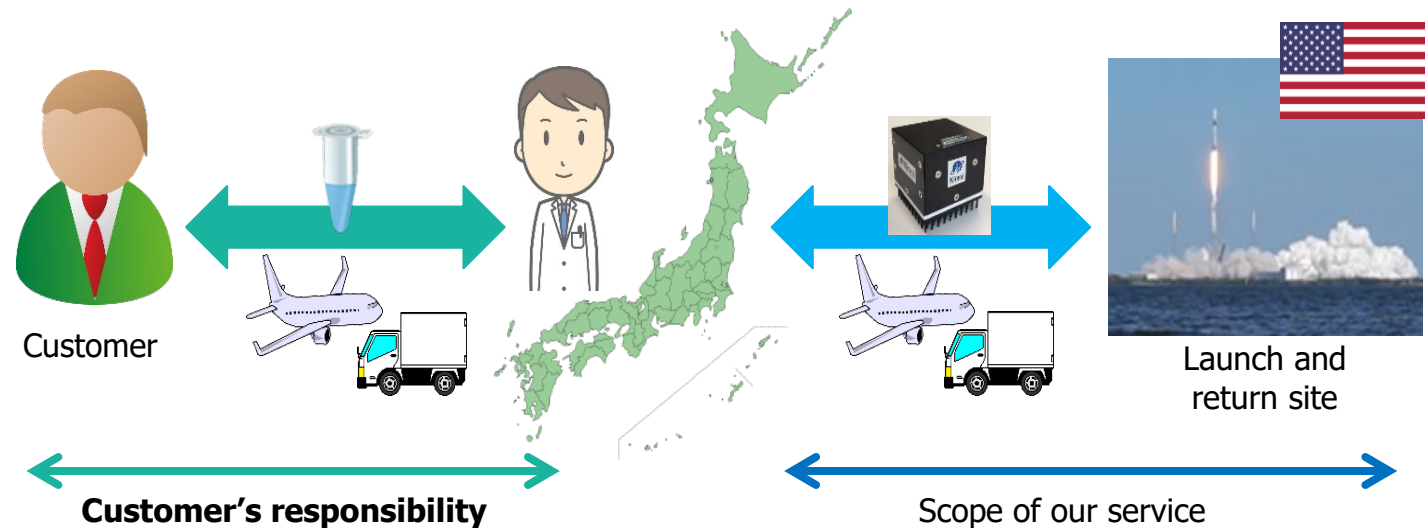
<https://www.moleculardimensions.com/products/c284-Magnetic-CryoVials-CryoCaps/>

- MiTeGen B5 and MiTeGen B5-R Goniometer Bases:

<https://www.mitegen.com/product/b5-goniometer-bases/>

Transportation documents and costs

Please understand that transportation is **responsible to the customers**.
(including customs clearance if it is from overseas)



It is customer's responsibility to prepare for transportation between your site and JAMSS designated location in Japan. It includes preparation of all documents (e.g. invoices) for shipping and payment of taxes not only when sending your cargo but when return. Shipping address will be notified individually. When you are ready to ship, please e-mail us with the estimated arrival date, tracking number and invoice information.

Customs clearance information



Custom tax is exempted according to types of the contents but consumption tax is applied for goods higher than 10,000JPY in custom clearance of Japan. If it is temporal export from your site and no change is added when return, the tax you pay can be refunded per the following process:

https://www.customs.go.jp/english/c-answer_e/imtsukan/1606_e.htm

We can help preparing for the application documents but make sure that your shipping company and their service support the process.

Some major shipping company's service NEVER support the refunding process in Japan.

Reference info:

Prohibited items to import to and export from Japan

https://www.customs.go.jp/english/c-answer_e/kinseihin/2001_e.htm

https://www.customs.go.jp/english/c-answer_e/kinseihin/2501_e.htm

Japan CSCL(Chemical Substances Control Law) and the database

https://www.meti.go.jp/policy/chemical_management/english/cscl/index.html

https://www.nite.go.jp/chem/jcheck/top.action?request_locale=en

Information on Cartagena Protocol domestic (Japanese) law for LMO

http://www.biodic.go.jp/bch/english/e_index.html