JCB-SGT

A protein crystallization container

Features

- **Onboard space experiments:** JCB-SGT has been used in the protein crystallization project of JAXA. A 3-cell type with 3 cylindrical vessels and a 6-cell type with 6 vessels on a 30 mm wide sheet are available.
- **Various crystallization methods:** Various crystallization methods, such as batch, vapor diffusion, counter diffusion, dialysis, and diffusion pair - osmotic concentration can be performed. It is useful for the optimization of the conditions for space experiments and for ground-based control experiments.
- **Soft material:** The JCB-SGT is made of PET sheet. By crushing the silicon tube portion of the tubular sample container inside the JCB-SGT, the diffusion can be suppressed. With releasing, crystallization can be started at the same timing as in space experiments.
- **Heat seal:** After filling the sample, it is heat-sealed. This prevents leakage of liquid completely and ensures high reproducibility and reliability. Since the material is low gas permeability, water vapor permeation from inside the container is minimized and the crystals are stable for more than one year.

6 cell type　　3 cell type

These products use the results of technological development by JAXA under license.

Cat. ID	Product Name	Qty.	Price(w/o VAT)
CRT420	JCB-SGT 3 cell	2	¥19,000-
CRT421	JCB-SGT 6 cell	2	¥38,000-

JCB-SGT Loading Tools

Point Sealer

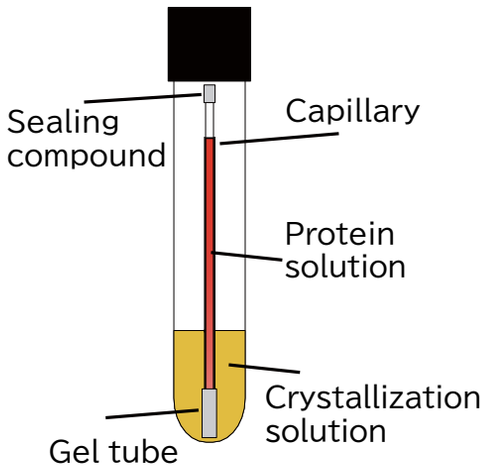
Heat Controller

Transformer

Cat. ID	Product Name	Qty.	Price(w/o VAT)
CRT300	JCB-SGT Loading Tools (Point Sealer & Heat Controller)	1	¥33,000-
CRT301	Transformer for 220V	1	Please contact us

※ Please inquire for prices of space-standard products.

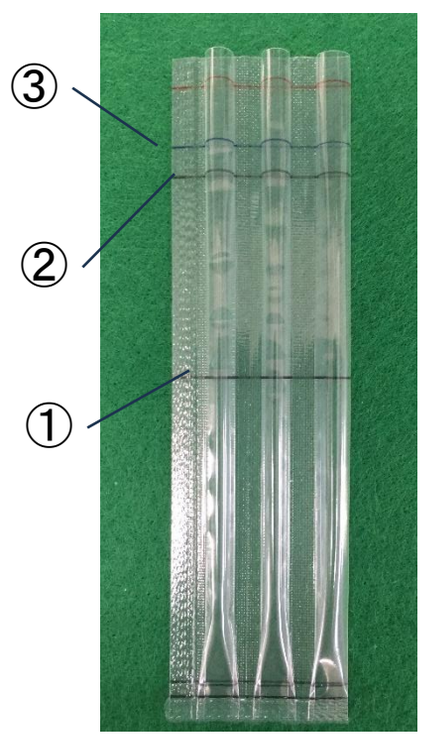
Available crystallization methods
Counter diffusion (CD): A capillary is filled with protein solution, a gel tube (CRT231-6) is attached and the other end is sealed with sealing compound. The capillary is immersed in a crystallization reagent solution [1]. A single capillary can screen a wide range of crystallization concentration conditions [2].
Dialysis (DL): After the sample loading, a gel tube (CRT901-RC-6) with dialysis membrane is attached. Others are the same as CD[1].
Diffusion pair-osmotic concentration (DPOC): Fill a DPOC vessel (CRT850SP-6) with protein sample solution and crystallization solution successively[1].



1) Takahashi S, et.al. Int. J. Microgravity Sci. Appl. (2019). 36(1), 360107. https://doi.org/10.15011//jasma.36.360107.
2) Garcia-Ruiz, J.M. & Moreno, A.: Acta Cryst., D50, (1994) 484-490. https://doi.org/10.1107/S0907444993014350.
To simulate the space experiment, C-Cap (CRT-413), gel tube with waterproof cover (CRT213-P-6), and DPOC vessel (CRT-850SP-6) are necessary.
For the optimization of crystallization conditions, C-Kit Ground Pro XRD (CRT101-1) is available as an experimental kit for CD and DPOC methods.

JCB-SGT Set up procedure (CD method)

1. Fill each cell of the JCB-SGT with crystallization solution up to ①. (It is easier to use the tool made with a glass capillary connected to the tip of the pipettor tip via a silicon tube.)
2. Prepare the capillary assembly with the sample.
3. Load the assemblies into the cells of the JCB-SGT, two for the 3-cell type and one for the 6-cell large part. Normally, the gel tube side should be down.
4. Add crystallization reagent to 1 mm below ②.
5. Heat-seal the upper side of ② while slightly overflowing the crystallization solution. Be careful not to leave any air in each cell.
6. Cut the cell with scissors at the position ③.
7. Heat seal the upper side of ②.
8. Place in an incubator to crystallize.



※ Please inquire details on the setup method for space experiments.

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