

C-Kit Ground Pro



High quality protein crystallization kit for XRD and ND

C-Kit Ground Pros are kits for growing high quality protein crystals. C-Kit Ground Pro **XRD** is for X-ray diffraction and C-Kit Ground Pro **ND** for neutron diffraction. Use of C-Kit Ground Pro allows you to optimize crystallization conditions easily in your lab.

Product No	Item	Price excluding tax
CRT101-1	C-Kit Ground Pro XRD ^{1,2)}	¥50,400
CRT101-2	C-Kit Ground Pro ND ^{3,4)}	¥151,200
CRT101-3	C-Kit Ground Pro e-mail support	¥60,000
CRT101-4	C-Kit Ground Pro video support	¥60,000

These prices do not include sales tax and shipping fee.

References:

- ¹⁾J. Synchrotron Rad. (2004) **11**, 45.
- ²⁾Int. J. Microgravity Sci. Appl. (2019) **36**, 360107.
- ³⁾Crystals (2020) **10**, 78.
- ⁴⁾Int. J. Microgravity Sci. Appl. (2021) **38**, 380103.

C-Kit Ground Pro XRD^{1,2)}

This kit contains two types of experimental tools; one is for the **counter diffusion method (CD)** and the other is for the **diffusion pair under osmotic concentration method (DPOC)**. The instructions for both methods are included.

CD¹⁾ is an established method for apo- and complex- protein crystal growth. It's self-searching mechanism increases the probability of generating high quality protein crystals. In addition, diffusion process decreases the concentrations of co-existing small molecules around protein, so that the crystallization conditions are less affected by contaminated chemicals in protein than the conventional vapor diffusion method (VD). Seeding is also available in this method for the robust crystallization.

DPOC²⁾ is a new method. In this method, the precipitant and the protein are tandemly loaded to form a diffusion pair in a silicon tubing. They diffuse into each other and are osmotically concentrated at the same time. As a result, protein is crystallized by both VD and CD mechanisms. DPOC is recommended in the cases when the protein concentration is not optimal, the quantity of the ligand for the co-crystallization is limited, or when CD generates no crystal. Seeding is also available in this method for the robust crystallization.

Item	QTY	CD	DPOC	Details
Capillary	15	○		Glass capillary (ID 0.5 mm, OD 1.2 mm, length 47 mm).
Gel-tube	18	○		ID 1 mm, OD 2 mm, length 10 mm
5 mL test tube	23	○	○	For incubating loaded samples
DPOC-tube	8		○	Silicon tube (ID 1.0 mm, OD 2.0 mm, length 39.5 mm) without an osmo-resistant cover.
C-Cap	16		○	For protect DPOC-tube ends from osmotic pressure.
Silicon-tube	50 cm		○	For sample loading
Instruction manual	1	○	○	
Sealing compound	1	○	○	

C-Kit Ground Pro ND^{3,4})

To generate a single large protein crystal for ND, this kit contains experimental tools for successful optimization of crystallization conditions in a **large bore capillary (ID 2 mm) with a dialysis membrane (LCDM)**. It contains narrow bore capillaries for the **batch method (BT)** and the capillaries and the gel-tubes for the **CD**. CS recommends checking the crystallization behavior by BT at first to identify crystallization conditions, confirm and refine the crystallization behavior by CD, and finally applying it to the LCDM trial.

Item	Qty	BT	CD	LCDM	Details
Capillary	100	○			ID 0.29 mm, OD 1.15 mm, length 29 mm
Capillary	15		○		Glass capillary (ID 0.5 mm, OD 1.2 mm, length 47 mm).
Gel-tube	18		○		ID 1 mm, OD 2 mm, length 10 mm
LCDM (glass)	6			○	ID 1.9 mm, OD 2.4 mm, length 18 mm glass capillary with a dialysis membrane (MWCO 6-8 kDa). GT is attached already
LCDM (quartz)	2			○	ID 2 mm, OD 2.4 mm, length 18 mm Quartz capillary with a dialysis membrane (MWCO 6-8 kDa). GT is attached already
C-Cap	10			○	For protecting an end of LCDM from osmotic pressure. Including 4 spares
Gel loading chip	9			○	For loading a sample into LCDM
5 mL test tube	30	○	○	○	For incubating loaded samples
Instruction manual	1	○	○	○	
Sealing compound	1	○	○	○	

On-line technical support

We provide on-line technical support on the concept of crystallization condition optimization and experimental methods by **e-mail** or **video meeting**. If the biochemical information of the target protein, crystallization conditions, and your results of crystal-experiment are disclosed, CS will identify candidate countermeasures to obtain good crystals.

Items	Details
e-mail support	5 times QA
video support	1 hour

The methods and the devices of C-Kit Ground Pro are compatible with the commercial Kirara service (<https://www.jamss.co.jp/en/kirara/index.html>) and the JAXA PCG service to use the microgravity environment.



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