Crystal Big Bang, SOSHO

New Technique of Manipulating a Protein Crystal

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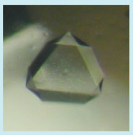
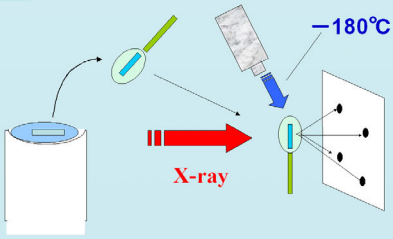
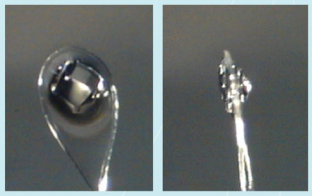
Loop-based mount method



Protein crystals consist of 30～80% solvent.
⇒ Very fragile



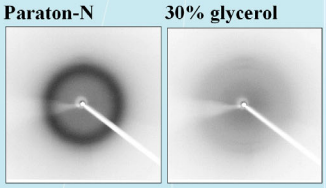


Hold a protein crystal in nylon loop with cryoprotectant solution without direct contacting

Advantage ・Avoid the contact damage between loop and a crystal

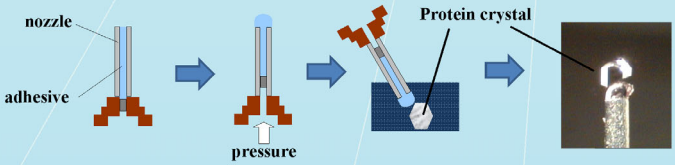
Problems ・Require users to skill in the step of mounting of a crystal

・The excess solution in the loop
→Increasing background scattering
→Reducing diffraction signal-to-
→Decreasing the cooling rate



⇨ *Degrade the quality of XRD data*

Crystal Catcher ™



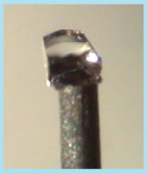
Directly capture of a protein crystal by adhesive material

Advantages ・Easy capturing of a crystal ・Reducing the excess solution around a crystal

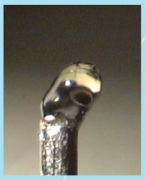
CT-100

Protein crystals in salt conditions

lysozyme



AcrB (membrane protein)

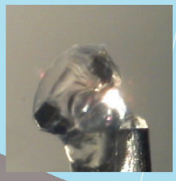


CT-200

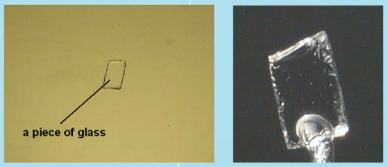
Protein and organic crystals in organic solvents and high viscosity solutions

trypsin

glucose isomerase



<Under 100% ethanol>



→ Our tool can capture and hold a small molecular crystal under high concentrated organic solvent

XRD images

→Single crystal without causing significant
→Reducing background scattering
→Reducing cryoprotectant

[References]
Kitatani *et al.* (2008) *Appl. Phys. Express* **1**, 037002.
Kitatani *et al.* submitted.