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🌐 Crystal harvesting, shipment to synchrotron and X-ray data collection

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Protocol status: Working

We use this protocol and it's working

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Abstract

This protocol describes the for harvesting crystals, and sending them to the synchrotron for remote X-ray data collection. Standard cryo-tools and containers for shipping are used.

Materials

- 24 well Linbro plates
- Mitegen crystal mounts and loops
- Vaseline white petroleum jelly
- glass coverslips
- UniPucks, associated tools, Molecular Dimensions
- CX100 dry shipper
- liquid nitrogen

Crystal harvesting

- 1 Crystals are transferred using loops from Mitegen and briefly dunked in the precipitant solution supplemented with 25% glycerol to reduce ice formation during harvesting. Loops are then used to pickup and dunk crystals into cryovials (from Mitegen) that are submerged in liquid nitrogen. The loops and vials are now closed with a magnetic neck and transferred to UniPucks that can be loaded onto canisters and CX100 shipping dewars for synchrotron data collection.
- 2 Shipping dewars with crystals housed in pucks under cold conditions are shipped to synchrotrons using FEDEX. Typically the synchrotrons used are NSLS2 at Brookhaven, New York; Soleil synchrotron in Saclay, France; and the Advanced Photon Sources (APS), in Argonne, Illinois.  harvest-tools.jpeg 625.4KB
- 3 Crystals are mounted at the beamline remotely by our local contacts at the synchrotron. We typically do not go the synchrotron for data collection, it is collected remotely using software specific for each beamline at the various synchrotron facilities. Data collection parameters will be found from the raw images that we have deposited along with the refined crystal structure in data repositories.