Facilities



Nano Drop™ spectrophotometer



Microscope



Crystal handling kit



PC with crystallographic software



Dewar



Low temp. incubators



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Xtal Lab

Automated Protein Crystallization Laboratory



https://www.facebook.com/xtallab/

www.slri.or.th

SYNCHROTRON THAILAND

Xtal Lab

is one of SLRI's laboratories where has been established in 2017 to provide services on protein crystallization and crystal handling in order to contributing to further steps to macromolecular crystallography beamline.

This crystallization is a crucial step in a field of protein crystallography in according to completion on 3D structure of desired proteins at atomic resolution. From crystallographic studies giving accurate and distinct results, it has predominantly been instructed for structure-based drug design studies.



Protein Crystallization

The Xtal Lab houses an automated crystallization system, equipped with Douglas's Oryx 8 Robot. This system is able to perform several techniques of crystallization by screening and optimization as well as micro-seeding methods. That will help you get through the process with small amount of pure protein and also complexes of protein and ligands for good quality of crystals

X-ray Data Processing

Once your protein crystal gives a good diffracted dataset, it will be compiled and analyzed by crystallographic software provided by the Xtal Lab such as CCP4, Phenix, iMosflm, and Coot, etc. for building 3D protein structure.

Structural

Analysis & Prediction

Before getting into crystallization, you should know bioinformatics of your protein i.e. protein sequence, peptide folding, binding pocket, alignment comparison, especially molecular weight and extinction coefficient. In this lab, we provide computational analysis as well as basic spectroscopic analysis by Nano Drop™

spectrophotometer.

Crystal Handling

Another important step is to preserve protein crystals in best form as possible in a storage containing liquid N₂ before mounting to a diffractometer. This step can be achieved in the lab with specific tools i.e. cryo-loops with several sizes, cryoprotectant reagents, uni-pucks, and dewar.













