X-Ray Facility

Macromolecular Crystallography

@ Institute of Molecular Biophysics

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X-Ray Facility Services

Data Collection
- Home Source
- Synchrotron Source

Data Processing
- Initial processing
- Advanced processing

Crystal Screening
- Hampton Screens
- Wizard Screens

Crystal Handling
- Freezing & storing
- Freezing & shipping
X-Ray Facility Sources

**Home Source**
- In Kasha Lab 4th floor
- In-person data collection
- Image plate detector
- CCD detector
- Ready when needed
- Screening and collection

**Synchrotron Source**
- Argonne, IL (APS @ ANL)
- Remote data collection
- Mail-in data collection
- 12 x 12 h slots/year
- 5 mail-in slots/year
- Mostly collection
X-Ray Facility at IMB (Home Source)

• Established in 1993
• One of the four core facilities in IMB
• Open access to FSU and SUS Institutions
• Safety and on-site training required
• Nominal fee to use the facility
• $2.99/h to cover consumables
• Typical data collection cost $150-210 (2 -3 d)
• Our beam line opened 2001
• Once in a month remote usage
• Cyber security and safety training needed
• Planning, freezing, and shipping required
• $87.50/h to cover annual membership fees
• Typical data collection cost $525-1050 (6 -12 h)
Protein Crystal Screening Service

- XRF has multiple screening solutions
- Hampton: CS, CS1, PEG-Ion, and Natrix
- Emerald Bio: Wizard I, II, and Cryo
- Forty-eight or ninety-six conditions
- Ambient, 4º C, and 12 º C set-up possible
- Observed after: 1, 3, 7, 14, 21, 28 d
- $125/96-well to cover consumables
What XRF Can Do for You?

1. Crystal
2. Diffraction
3. Data Collection
4. e- Density
5. Data Processing
6. Atomic Modeling
7. Structure

XRF can help you in steps 1, 2, 3.

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X–Ray Facility Photo Gallery

by Dr. Thayumanasamy Somasundaram
Home Source Data Collection
Rigaku RU-H3R Generator & R-Axis IV++ Image Plate
Synchrotron Data Collection
SER-CAT Sector 22
Initial Data Processing
Initial data processing using Linux machine
Crystallization Screening
24 x 4 Screening plates set-up at room temperature
Variable $T$ Crystal Growth
Variable Temperature Incubator, Dry Shipper, and Storage
Crystal Freezing & Transport
Pucks, lids, station, and pins for synchrotron data collection