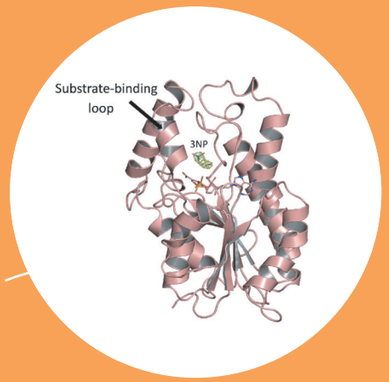
MX

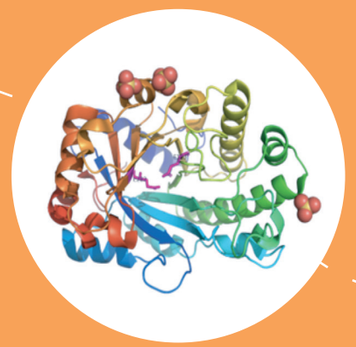
RESULT/APPLICATION



The overall structure

The overall structure of InhA-NAD+-3NP complex (PDB entry 7E48). 3-nitropropanoic acid (3NP) is a bioactive compound and proposed as an antitubercular agent.

Citation: PROTEINS: Structure, Function, and Bioinformatics. 2022; 90(3): 898-904. DOI: 10.1002/prot.26268



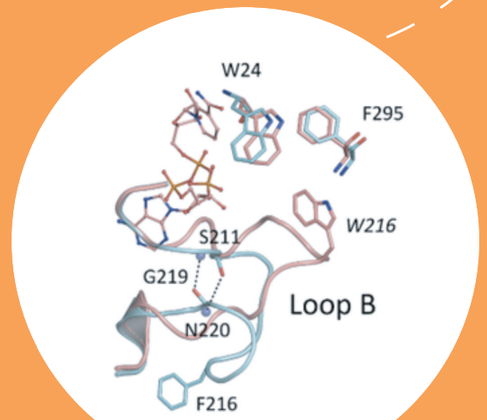
Crystal structure

Crystal structure of β-mannanase (PDB entry 7EET). β-Mannanase is an enzyme which plays potential applications in various industries such as pharmaceutical, detergent, food and feed industries.

Citation: Acta Crystallographica D: Structural Biology. 2021; 77(11): 1425-1436. DOI: 10.1107/ S2059798321009992.

Macromolecular protein structures

Macromolecular protein structures are important for biological functions including drug design, disease research and understanding molecular function.



The superimposed structures

The superimposed structures of apo AKR4C14 (PDB entry 6KBL) and NADP+-bound AKR4C9 (PDB entry 3H7U) explains conformational change in rice AKR4C14. Rice AKR4C14 is an aldo-keto reductase from Thai Jasmine rice which plays a crucial role in stress-tolerant.

Citation: Acta Crystallographica D: Structural Biology. 2020; 76(5): 472-483. DOI: 10.1107/S2059798320004313.



MACROMOLECULAR CRYSTALLOGRAPHY

(MX)

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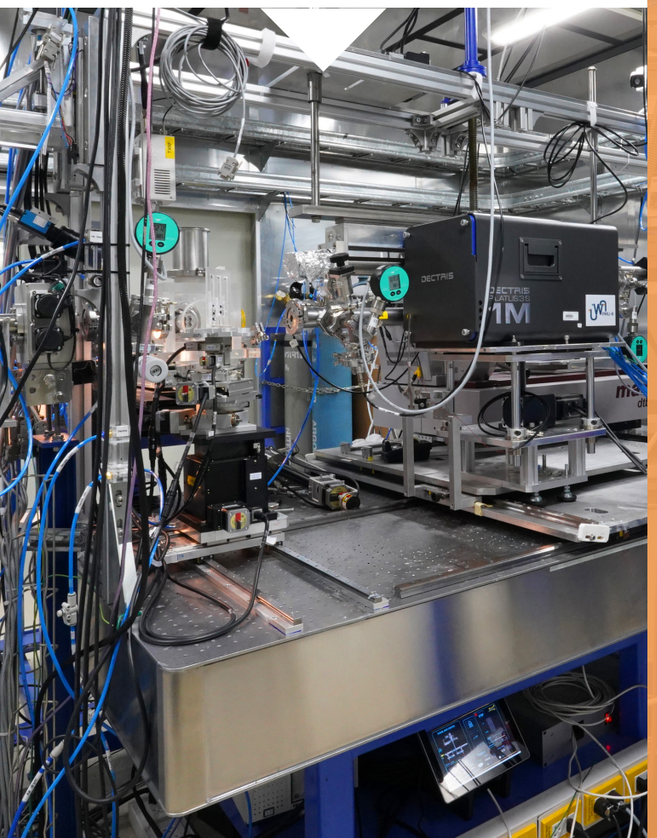
Siam Photon

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SYNCHROTRON LIGHT RESEARCH INSTITUTE
(PUBLIC ORGANIZATION)

PRINCIPLE INFORMATION

Macromolecular Crystallography (MX) technique enables the determination of the atomic structures of biomolecules. When a crystal containing macromolecules is hit by X-rays, the X-rays diffract in many directions, thus creating a unique diffraction recorded on a detector. The resulting X-ray data are mathematically processed to reconstruct an electron density map, thus revealing the precise 3D arrangement of atoms. This is essential for gaining biological insights and understanding the function of complex molecules.



TECHNICAL SPECIFICATION

Category	Specification
Beamline	BL7.2: MX
Photon Energy Range	4.0 – 22.7 keV
Photon Flux (Full beam)	5.0 x 10^{10} to 1.4 x 10^{11} ph/s/100 mA
X-ray Beam Size	Adjustable (2.5 – 5,000 µm) to match crystal size
Detector	Dectris PILATUS3 S 1M Rayonix SX165 CCD
Sample Requirement	Cryogenic system: Liquid Nitrogen at 100 K

SDGs SUPPORT



Supports drug design and the study of infectious diseases (COVID-19, AIDS, TB, Malaria). MX provides atomic-level details of enzymes used in pharmaceutical development.



Provides structural insights into the rational design of enzymes, enabling cost-effective biosynthesis of high-value products from low-cost raw materials.



Facilitates research on proteins involved in the biocatalytic detoxification of herbicides, helping to mitigate soil and water contamination.

MX END STATION

