

Details

X-ray crystallography facility of Ulm University (XtalFacility)

The determination of the three-dimensional structure of proteins is key to understand their biological function and malfunction in disease. A modern method for the determination of such structures is X-ray crystallography (complemented by nuclear magnetic resonance and cryo-EM). In order to determine a three-dimensional crystal structure of a given protein, large single crystals have to be grown. After passing this initial bottleneck other labour-intensive steps follow. These include crystal optimization, data collection at synchrotron sources, data processing as well as structure determination and interpretation of the structural data. The X-ray crystallography facility of the Ulm university (XtalFacility Ulm) as a central research- and service unit is meant to make this comprehensive method available to scientists at the Ulm university and for external users in a collaboration- or service-like approach. The facility is run by the Institute of Pharmaceutical Biotechnology.

Address: James-Franck-Ring N27
89081 Ulm
Baden-Württemberg
Deutschland
[To website](#)

Host Institution

Universität Ulm
Helmholtzstraße 16
89081 Ulm
Baden-Württemberg
Deutschland
<https://www.uni-ulm.de/>

Scientific Domain

Primary Subjects:

- Biology
- Medicine

Secondary Subjects:

- Chemistry
- Physics
- Materials Science and Engineering

Category

Structural Biology Facilities

Scientific Services

The X-ray crystallography facility of the Ulm university (XtalFacility Ulm) as a central research- and service unit is meant to make this comprehensive method available to scientists at the Ulm university and for external users in a collaboration- or service-like approach. The offered techniques include: - assistance and support of structural biology projects; - support in the interpretation of structural biology research results; - robot based setup of crystallization experiments in 96-well plates; - design and support of crystallization screens for the optimization of initial hits in 96- and 24-well plates; - access to synchrotron radiation sources and collection of diffraction data; - processing of collected data and structure determination; - interpretation of structural data; - planning and measurement of small angle X-ray scattering experiments (SAXS).

Scientific Equipment

- Mosquito Xtal3 Nanodispenser (TTPLabtech)
- Binocular MC170 with HD-camera (Leica)

- Binocular SZX16 (Olympus)
- Crystal plate incubator (Rumed)
- Crystal storage dewar HC35 (Worthington)
- Table top centrifuges (ThermoFisher)
- 20°C room for crystal plate storage
- Liquid handling station Liquidator96 (Mettler)
- HT liquid handling station (to be ordered)

Keywords

- Crystallization of proteins
- Crystal structure analysis
- Structural biology
- X-ray crystallography
- Optimization of protein crystals
- Structure determination and -refinement
- Co-crystallization
- Synchrotron data collection
- Heavy atom derivatization of protein crystals
- structure-guided drug design

Networks

DFG Research Unit FOR2333

<https://www.for2333.de/>

Users per annum

Internal Users: ca. 20 (seit 2019)

External Users in total:

External Users: 0

External Users in the EU: 0

External Users outside of EU: 0