

# Crystallization of Biological Macromolecules in Warwick

[www.warwick.ac.uk/go/crystal](http://www.warwick.ac.uk/go/crystal)

**Background:** A suite of equipment in Life Science to enable high throughput crystallization and X-ray crystal structure determination of soluble and membrane proteins, nucleic acids and other biological macromolecules is available to the wider research community at Warwick.

**Crystallisation Robot:** We have obtained Mosquito LCP robot which can set up 96 well sitting or hanging drop crystallization plates with either 2 or 3 sample shelves. Using this device between 50 $\mu$ l - 200nl (nanolitre!) drops of sample can be dispensed so that a single 96 well screen will require less than 5-20 $\mu$ l of sample. The reduction in the amount and volume of sample means that screening against difficult to acquire or expensive ligands is possible with protein samples of less than 1mg in quantity.

**Crystal Imaging Robots:** Two Crystal-Pro crystal imaging systems have been installed at 18°C and 4°C for individual or parallel temperature controlled crystallisation experiments. Each device has a holder for 120 plates which the device will image according to a user defined schedule and robotic imaging microscope. The system uses a remote laboratory information management system which is web-based allowing remote access to the machine (e.g. from your own desktop) to see the images from your experiment or control the machine. This allows for a much more systematic and defined crystallisation experiment with time lapse identification of crystallisation conditions\*.

**Sealed Tube X-ray generator, MAR345dtb image plate & Oxford Cryostream:** Our ability to screen crystals prior to synchrotron data collection has been updated with a Xenocs sealed tube X-ray generator linked to our existing Wellcome Trusted funded MAR 345 image plate system. The sealed tube system provides similar X-ray intensities to traditional rotating anode sources but with significant savings in maintenance and operating costs. The system also includes a new Oxford Cobra cryostream system that uses atmospheric nitrogen as the source for a cryogenic cooling system required for crystal protection and storage. In total this suite of equipment provides Warwick with state of the art, internationally competitive macromolecular biological x-ray crystallography facilities. Through our membership of the Midlands block allocation scheme we have regular access to the Diamond and ESRF synchrotron facilities for high resolution data collection.

**Access to the facility:** For access, training other details please contact either Dr David Roper ([david.roper@warwick.ac.uk](mailto:david.roper@warwick.ac.uk)), Dr Alex Cameron ([a.cameron@warwick.ac.uk](mailto:a.cameron@warwick.ac.uk)) or Professor Vilmos Fulop ([vilmos.fulop@warwick.ac.uk](mailto:vilmos.fulop@warwick.ac.uk))

\* [www.warwick.ac.uk/go/proteincrystals](http://www.warwick.ac.uk/go/proteincrystals)

