

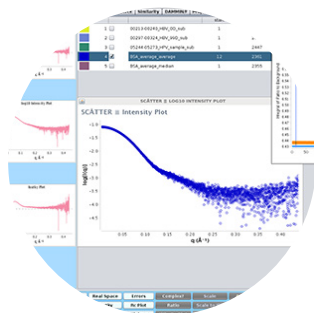
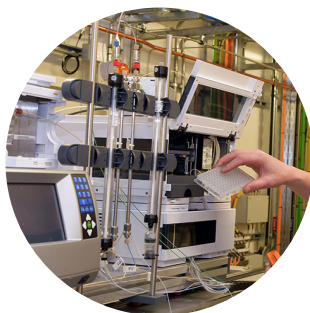
**B21**

# Automated Solution State SAXS

B21 is a dedicated solution state Small Angle X-ray Scattering (SAXS) beamline that can accommodate a wide variety of aqueous-based and some limited organic solvent-based samples.

In order to achieve high sample throughput, B21 is equipped with a highly automated bioSAXS robot for small volume liquid handling from a 96 well plate. SAXS samples are measured through a temperature controlled capillary.

The beamline users benefit from a fast streamlined data processing and data analysis pipeline so data can be analysed during the experiment. Multi-angle light scattering is also available for off-line sample analysis.



## Automated solution state SAXS

<b>Sample delivery method</b>	96 well plate <sup>1</sup> 8 well PCR strips <sup>1</sup>
<b>Sample volume</b>	40 µl per concentration (well)
<b>Sample concentration</b>	Dilution series of at least 3 concentrations between 10 mg/ml and 1 mg/ml
<b>Buffer</b>	Completely matched (please contact us for advice)  At least 2x total volume of protein solutions  Less than 10% glycerol  No detergent (affects SAXS signal)  No organic solvents <sup>3</sup>
<b>Maximum protein molecular weight</b>	Up to MDa if globular
<b>Temperature control</b>	5 – 60 °C
<b>Data collection time</b>	5 mins per sample including washing

<sup>1</sup>Diamond supplies both the PCR strips and the well plates.

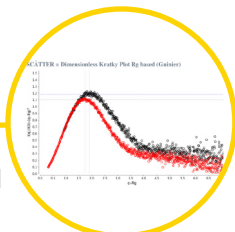
<sup>2</sup>Please contact us for advice.

<sup>3</sup>Some solvents may be incompatible with robot/HPLC internal tubing.

## B21 APPLICATIONS

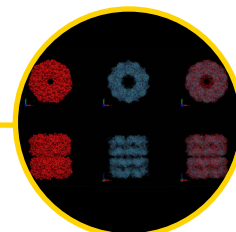
### Flexible Proteins

- Investigate proteins that are hard or impossible to crystallise;
- Screen buffer conditions to monitor folding;
- Domain structure analysis to determine suitability for crystallography.



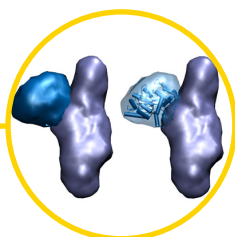
### Macromolecular Complexes

- Determine molecular weight of a protein or protein complex to determine oligomerisation state;
- Characterise multi-domain proteins using data from subcomponents of a modular protein or complex.



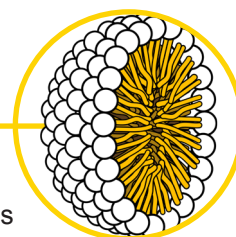
### Ligand Binding

- Investigate conformational changes associated with ligand binding;
- Validate structures by comparing SAXS to crystallographic data.



### Self-assembled microstructures

- Investigate size and shape of nanoparticles, surfactant micelles and polymer solutions;
- Understand phase behaviour in complex formulations.



### For further information

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