



UNIVERSITY OF LEEDS

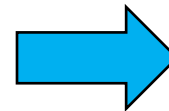
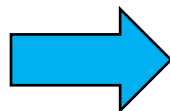
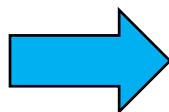
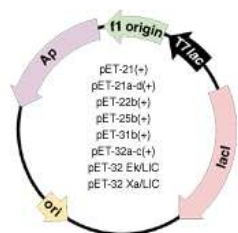
Astbury Centre Macromolecular Crystallography Unit (Faculty of Biological Sciences)

- 5 active principle investigators (additional 10-20 principle investigators using the technique of macromolecular X-ray crystallography as part of their research).
- Structural determination of biological molecules to aid in the understanding of their functions. Designing ligand/drug molecules.
- Macromolecular X-ray Facility, Astbury Building, Room 8.116.
<http://www.fbs.leeds.ac.uk/facilities/xray>

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Macromolecular X-ray Crystallography



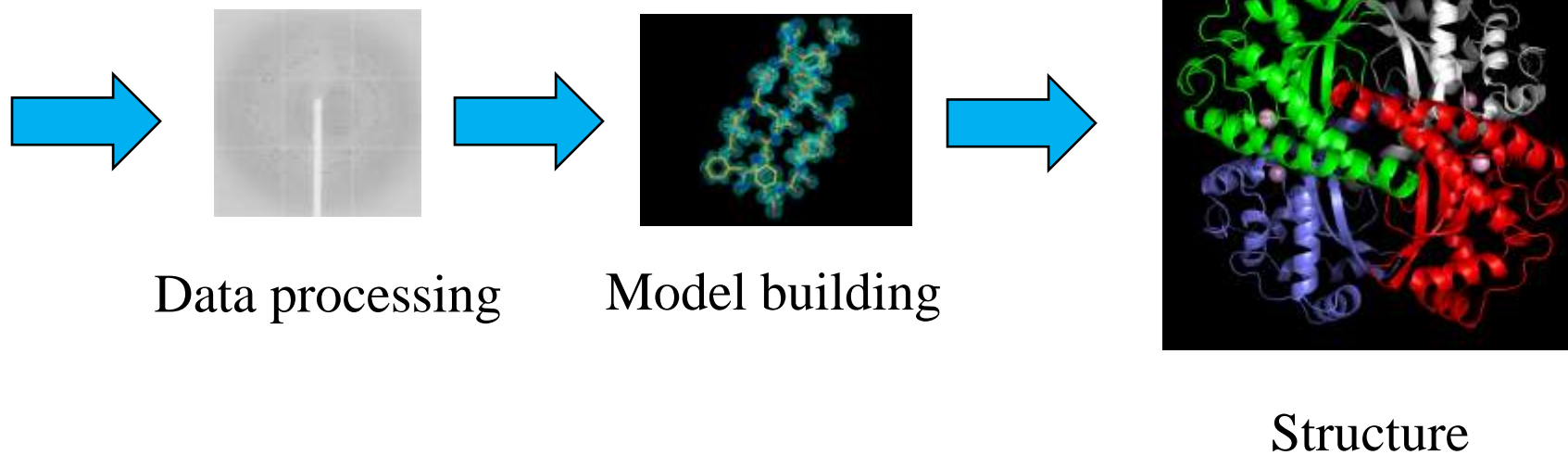
Molecular
biology

Protein expression,
purification and
concentration

Crystallisation

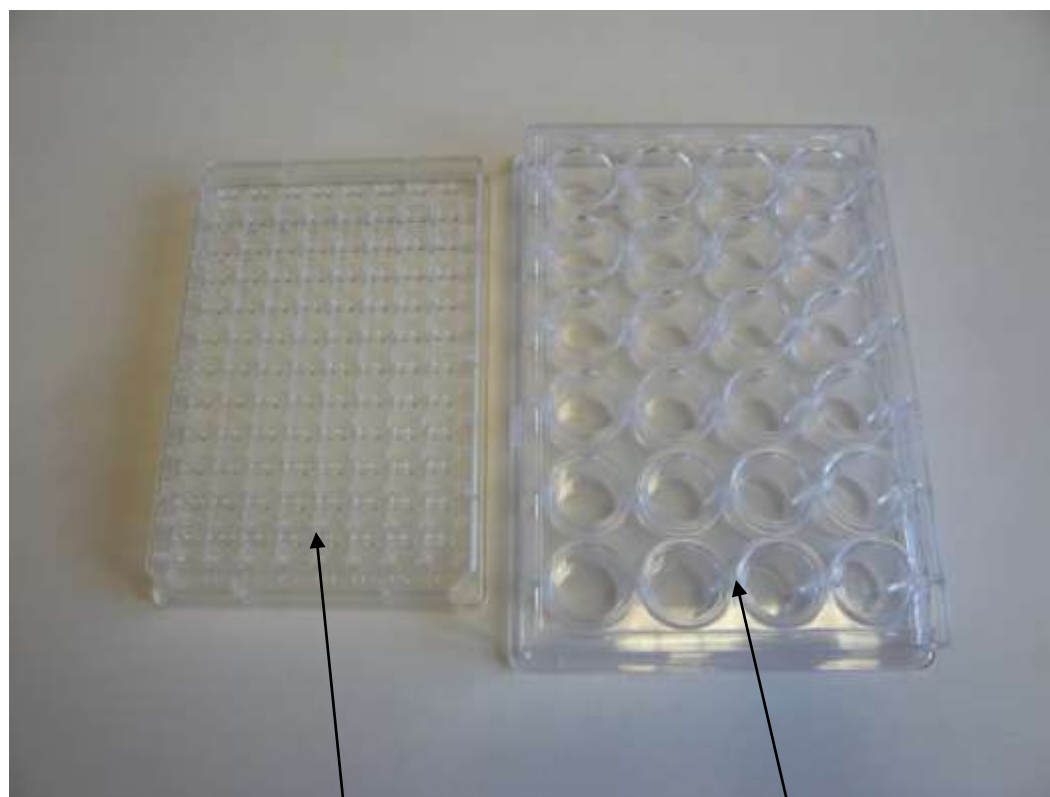
Data collection

Macromolecular X-ray Crystallography



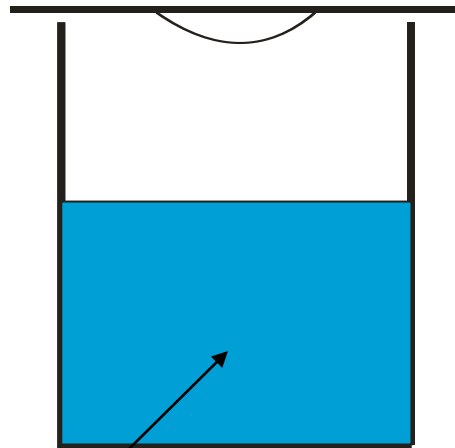
Crystallisation trials

Vapour diffusion
technique



96 well plate

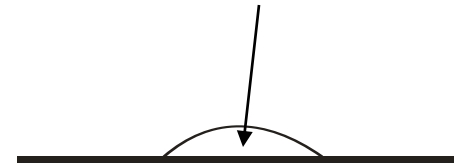
24 well plate

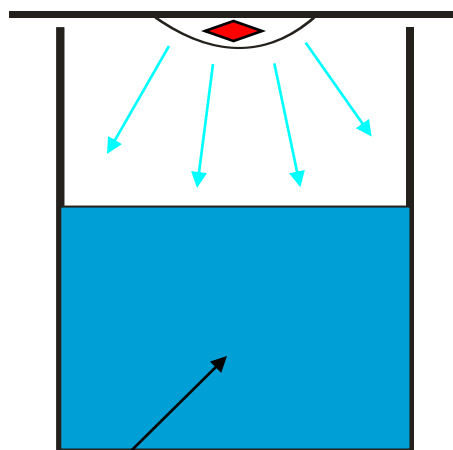


3M ammonium sulphate

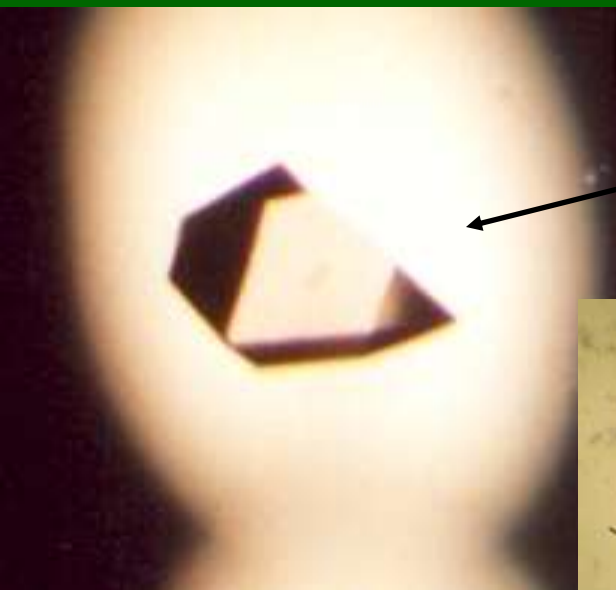
Resultant concentration is

5mg/ml protein concentration and
1.5 M ammonium sulphate

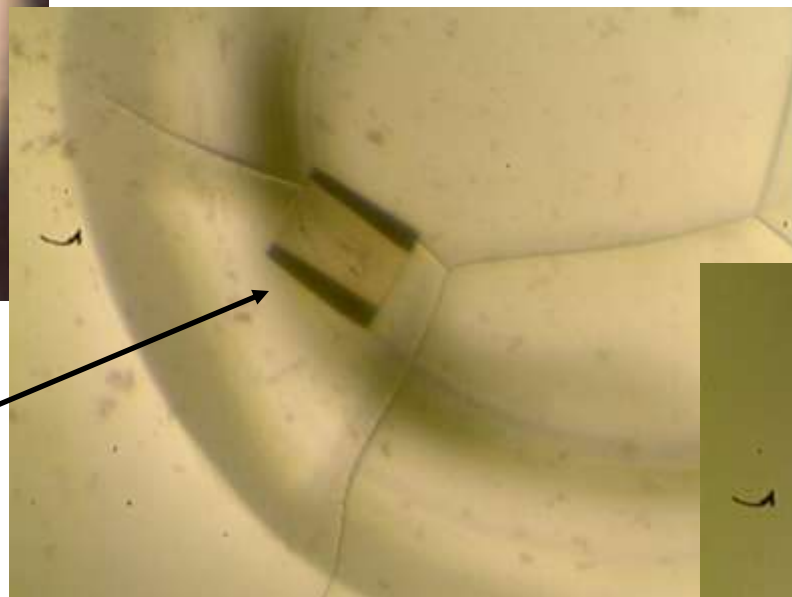




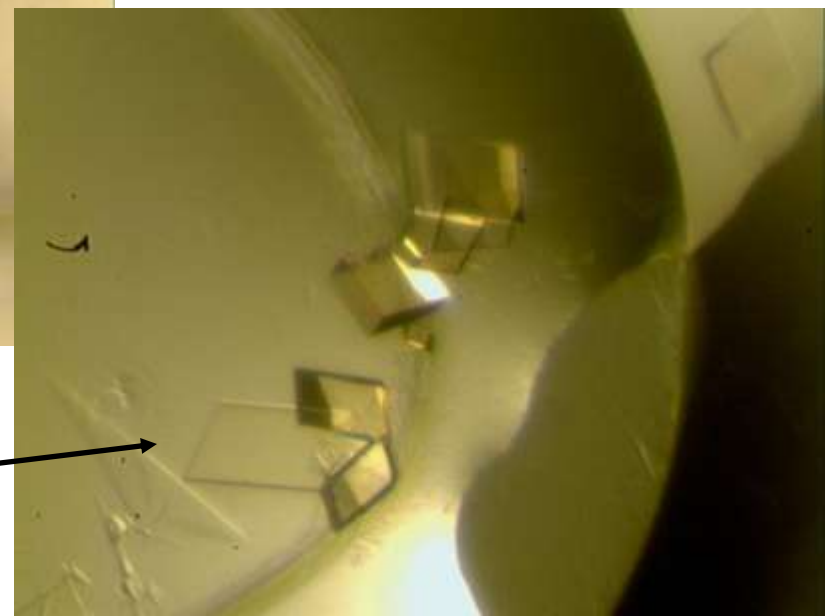
3M ammonium sulphate



← *C. elegans* manganese superoxide dismutase



Human keto-hexo
kinase



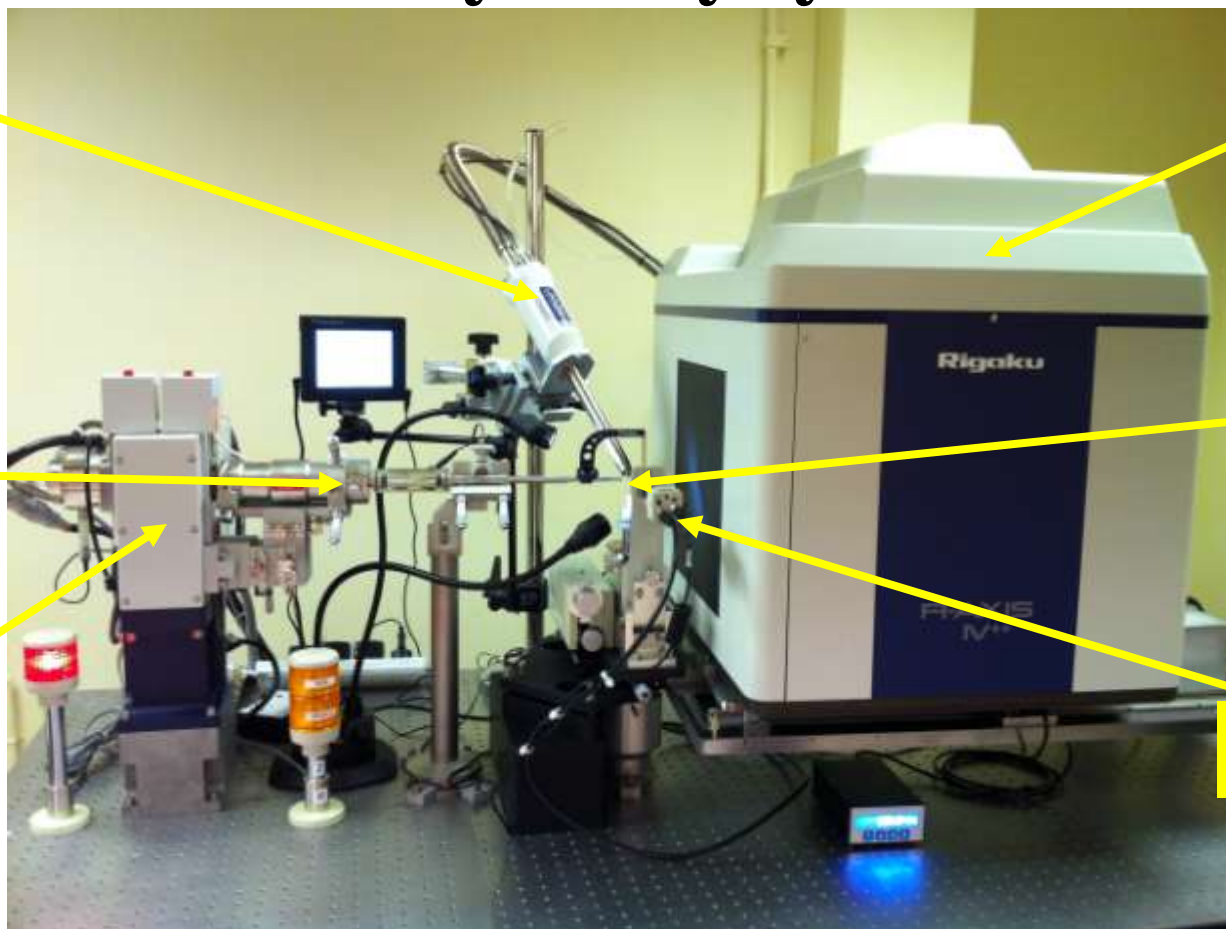
← *E. coli* iron superoxide dismutase

Laboratory X-ray system

Cryogenic
cooling
system

Focussing
system

X-ray
source

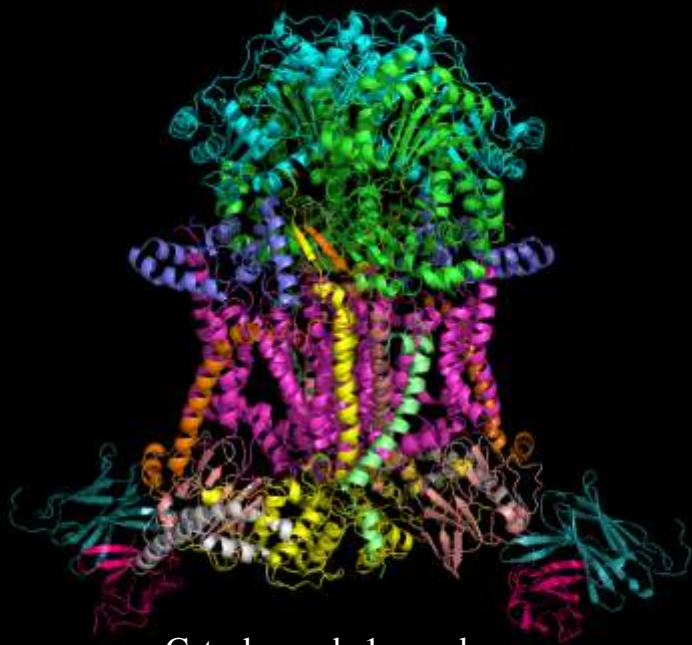


X-ray
detector

Crystal

Microscope

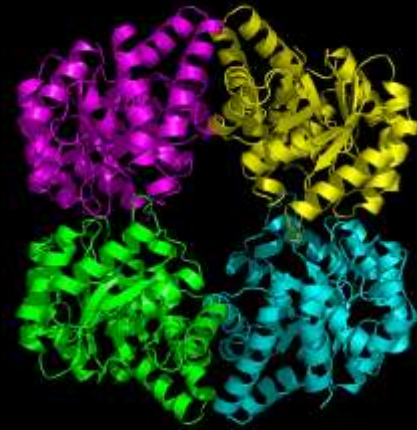
X-ray beam path →



Cytochrome bc1 complex



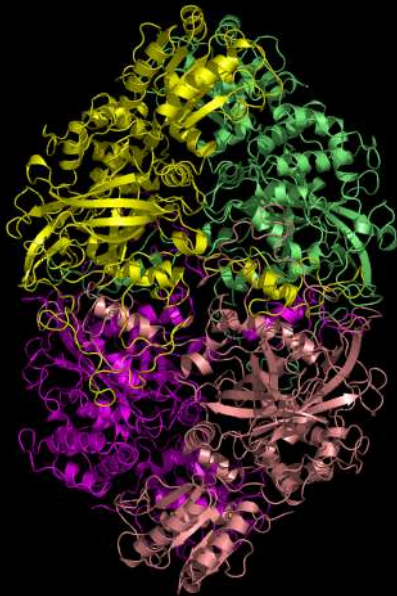
β -2-microglobulin



N-acetyl-D-neuraminic acid lyase



Keto-hexo kinase



Catalase-phenol oxidase



DNA-binding domain of the
response regulator VicR



Manganese superoxide dismutase