



The Membrane Protein Laboratory

Andrew Quigley

MX APS Meeting

5th May 2023



Research Complex
at Harwell



The Membrane Protein Laboratory

A Centre for integrative membrane protein structural biology.

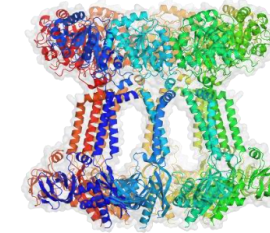
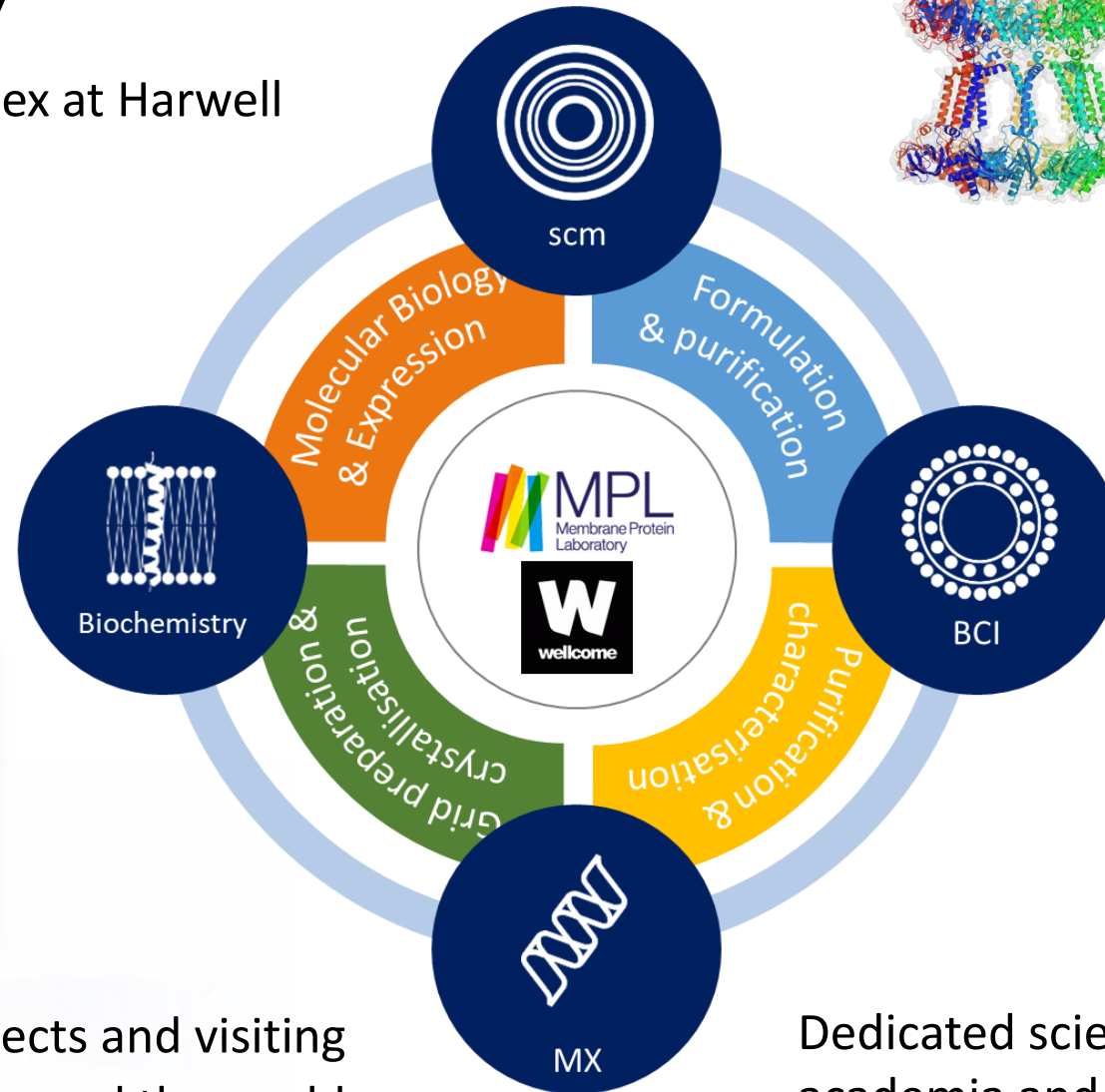


In operation since **2007**

Based in the Research Complex at Harwell

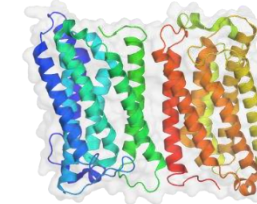


Supported over **250** projects and visiting Scientists from all around the world



Highlights

The molecular basis of regulation of bacterial capsule assembly by Wzc (2021)
Yang et al. (Nat. Commun.)



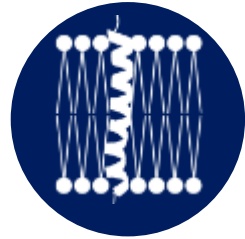
The structural basis of fatty acid elongation 2 by the ELOVL elongases. (2021)
Nie et al. (Nat. Struct. Mol. Biol.)



Dedicated scientists & laboratories available to academia and industry



MPL Access



Diamond



Industry



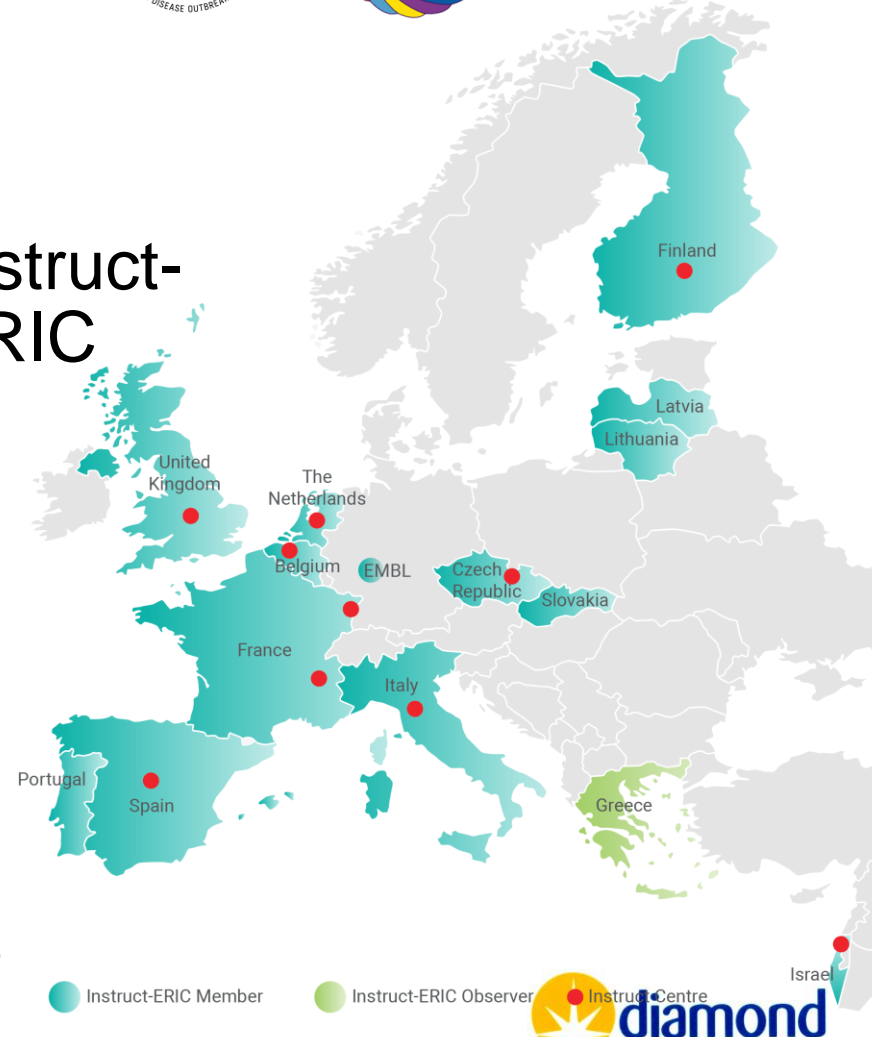
Academia



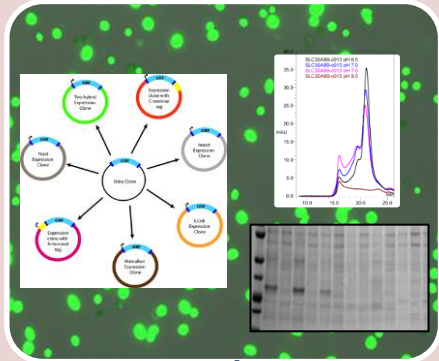
diamond.ac.uk



Instruct-ERIC

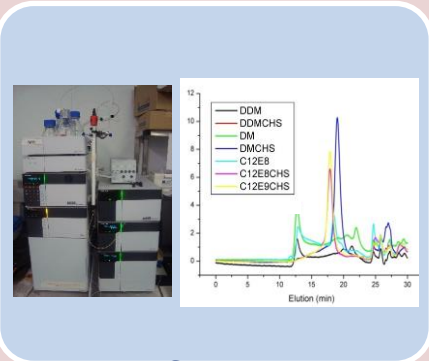


MPL Core Platforms



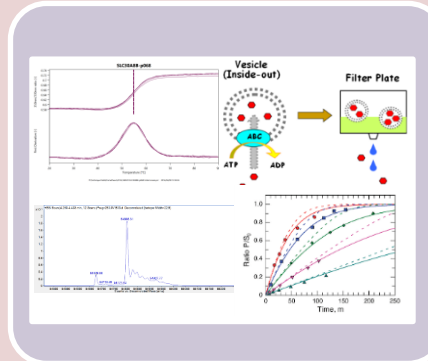
HTP-Cloning and Expression

- Multi-construct approach
- *E. coli*, yeast, insect and mammalian
- Small-scale test expression and purification



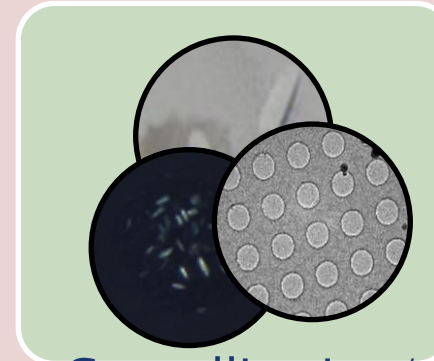
Purification Optimisation

- Small-scale screens
- Detergents
- Amphipols
- Nanodiscs
- SMALPS
- buffers/salts
- lipids



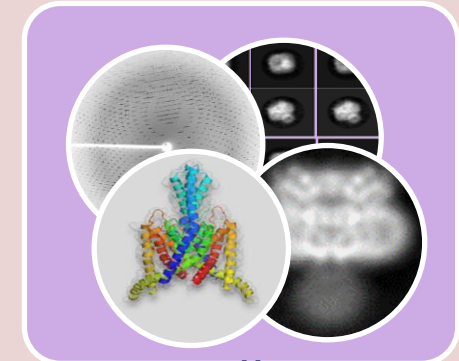
Protein Characterisation

- SEC- MALS
- DSF
- Direct Detect
- SPR
- ITC
- Mass Spec
- Mass Photometry
- FIDA



Crystallisation/ EM grid prep

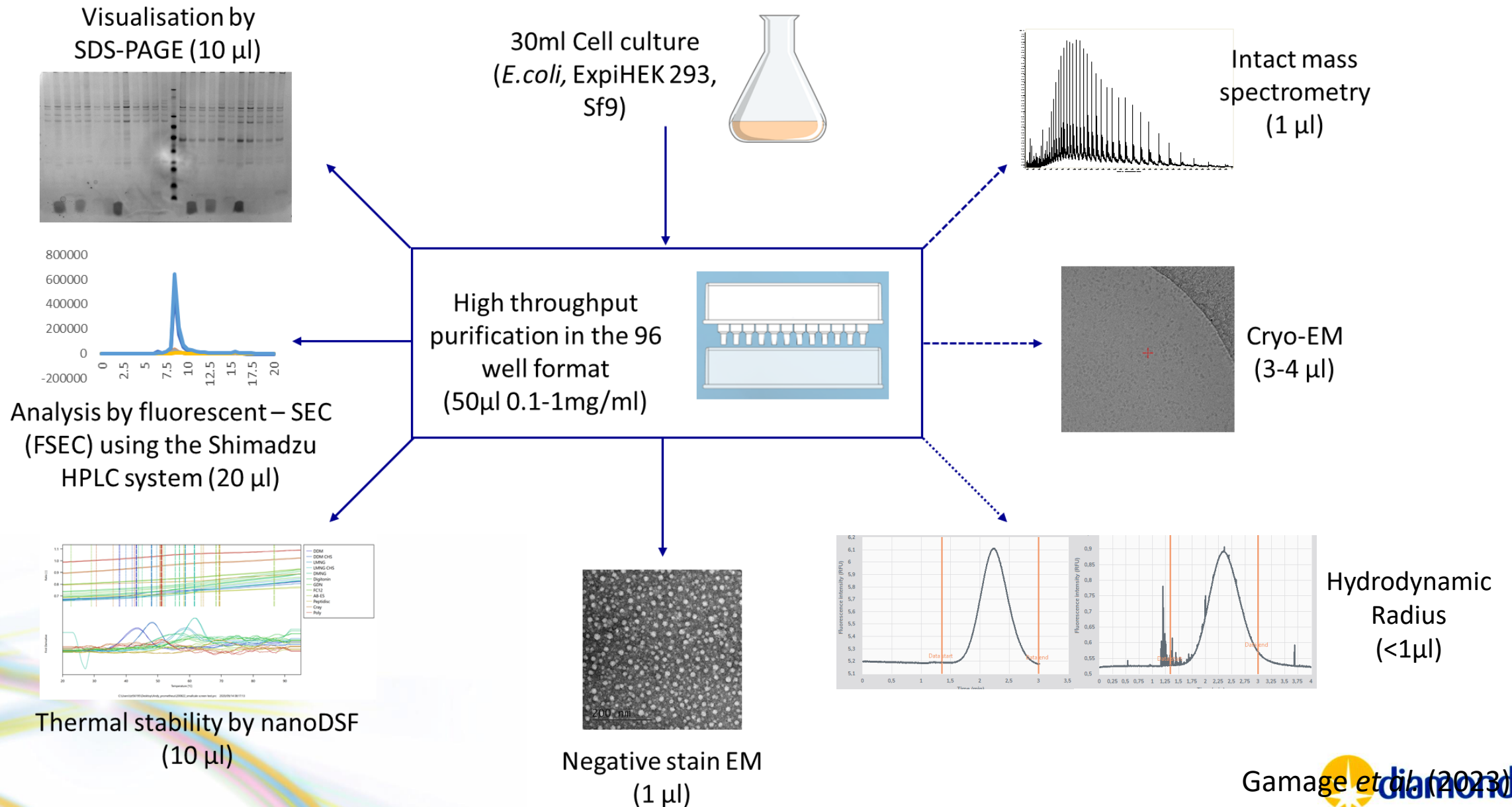
- LCP and LCP-FRAP
- Vapor diffusion
- Vitrobot/ GP2/ Chameleon
- Negative stain Jeol JEM-2100
- Cryo-EM Glacios II + Falcon IV



Data Collection/ Structural Solution

- Dedicated MPL BAG time for MX and SAXS
- EM data collection @ eBIC
- Support for data processing and solving structures

Purification Optimisation



Acknowledgements

MPL

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