Imaging

cryo-Electron Microscopy (eBIC for Industry)

eBIC for Industry

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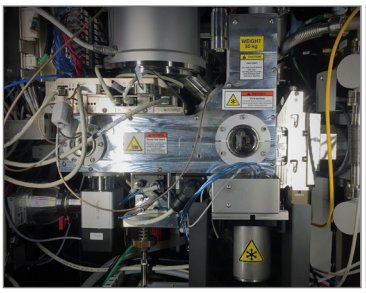
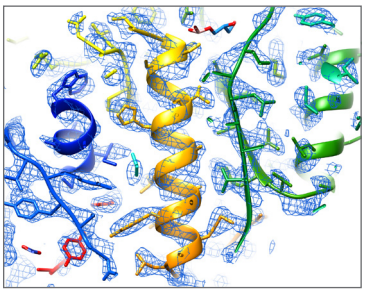
The electron Bio-Imaging Centre (eBIC) for Industry is an integrated facility at Diamond Light Source providing pharmaceutical and nanotechnology companies with access to state-of- the-art research equipment and expertise in the field of cryo-electron microscopy.

Recent advances in detector technology combined with the latest generation of stable and automated microscopes have dramatically improved the resolution of macromolecular structures achievable with cryo-EM and seen a rush to adopt the technique in rational drug design and vaccine programmes.

Our preparation facilities, dedicated screening and data collection microscopes, automated data processing systems, and expert scientific support provide a lower barrier to entry for researchers wanting to apply this powerful technique to their challenging scientific questions.

Flexible service offerings covering the entire cryo-EM workflow, from sample preparation to model building, and supporting scientific consultancy throughout ensure that users gain the most out of the facilty whether they are new to EM, or experienced microscopists.





Applications

Antibodies and vaccine research:

- Map the interactions between antibodies and antigens in biological drug and vaccine design studies

Drug discovery/rational design:

- Understand and identify protein-target compound interactions during rational drug design studies

Characterisation of nanotechnologies/nanomedicines:

- Fully understand the structure/function relationships of protein-based biotechnologies and drug delivery applications.

Benefits for Structural Biology

Cryo-EM enables you to:

- achieve structural information without the need to crystallise your target protein
- image protein complexes and protein-ligand interactions
- study macromolecules in as close to a native state as possible or in their cellular context
- identify and characterise dynamic biological states by observing multiple conformations.

For further information please contact the Diamond Industrial Liaison Office on

+44 (0)1235 778797

industry@diamond.ac.uk

www.diamond.ac.uk/industry

@DiamondILO

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eBIC for Industry

Why use eBIC for Industry?

- Integration with Diamond's Synchrotron-based complementary techniques
- Dedicated microscopes and experienced staff to support user requirements
- Access to the latest generation of microscopes and detectors
- In-house screening facility to lower the risk and costs of cryo-EM data collection
- Operational support with the capacity to confidentially handle large numbers of industrial experiments and visits
- Secure, high-performance scientific computing enabling real-time evaluation of data quality during collection
- On-site manufacturer support and expertise from Thermo Fisher.

State-of-the-art Microscopes

Krios™ G3i cryo-TEM

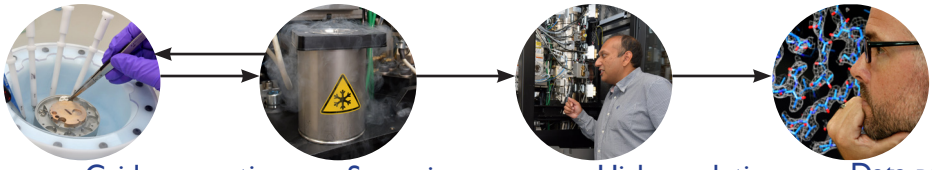
Glacios™ cryo-TEM

ThermoFisher SCIENTIFIC

Features	Benefits
Cryo-Autoloader for workflow compatibility between instruments	Increased screening throughput with minimal contamination
Latest generation of direct electron detectors (K3 & Falcon™3EC)	Improved contrast and ultimate biological structure resolution
Improved cryo anti-contamination design	Longer acquisition times (5 days without contamination)
Phase-Plate equipped	Possible to study smaller proteins (< 150 kDa)
Improved thermal and mechanical stability	Optimal performance during prolonged high-resolution data collection
EPU automated grid screening and data collection software	Increased screening/data collection rates and reduced training times

Experienced scientific support and full service offerings

- A team of microscopists, experienced in working with industry, can support the adoption or application of cryo-EM in challenging research projects
- eBIC for Industry is equiped to offer a range of services to both experienced groups and new entrants to the field, from grid preparation to structure solution.



Grid preparation | Screening | High resolution data acquisition | Data processing & analysis

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