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The impact of CryoEM and the centre for cryoEM at Diamond

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CryoEM is now a major driver of structural biology, especially for complex systems. It is possible to obtain structures at better than 2 A resolution in favourable cases, and also possible to obtain 3 A structures of complexes larger than 100 MDa in mass. Beyond this, new methods are emerging which allow lower resolution visualisation of complex structures within living cells. Most structural biology labs now want to use cryoEM, especially alongside X-ray crystallography as one of their main techniques. However the equipment remains very expensive and so the UK decided to establish a central facility at Diamond – eBIC. eBIC has been functional for three years and has grown enormously. eBIC now houses five high-end Krios microscopes, including one dedicated to industry use and run as a partnership with Thermo Fisher. Despite the increase in provision there is still oversubscription for microscope time. eBIC is completely embedded within Diamond and access provided through the normal Diamond peer review route, with most access provided through the Block Allocation Group model, which was originally developed at the ESRF for macromolecular crystallography and is now widely used. The output has been outstanding, as judged by ~70 high quality peer reviewed publications. The presentation will outline the current situation and future potential for cryoEM facilities.

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