Poster Presentation

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I04-1, a future 'fragment screening' beamline facility at Diamond Light Source

A. Douangamath[1], J. Brandao-Neto[1], M. Williams[1], R. Fearn[1], T. Krojer[2], P. Aller[1], K. Henderson[1], E. Longhi[1], L. Allianelli[1], F. Von Delft[1]
[1]Diamond Light Source, Didcot, UK, [2]Structural Genomics Consortium Oxford, Oxford, UK

I04-1 is one of the six macromolecular crystallography (MX) beamlines at Diamond Light Source (DLS), the third generation synchrotron light source in the UK. It was built and delivered in 2010 as a stable and reliable fixed-wavelength MX station. It is currently preparing to release its user programme for exploiting fragment screening using X-ray crystallography in structural medicinal chemistry projects. For this purpose, the beamline has been going through several upgrades in order to achieve unattended high-throughput ligand crystallography. The new developments are aiming at improving the flux, stability and reliability of the beamline and its auto-alignment. In parallel, a peripheral laboratory is being set up to provide a facility for medium throughput compound soaking. Jointly with the Structural Genomics Consortium (SGC), a semi-automatic crystal soaking and harvesting scheme, which will provide hundreds of MX samples per day, is being tested at DLS. The beamline can currently process 400 crystals per day. However, the recent upgrades and automation should further improve that throughput. In this presentation, we will summarise the current specifications of the beamline and its new features, the development of a peripheral laboratory for compounds soaking and underline the remaining work.

Keywords: Macromolecular crystallography, fragment screening, automation