

Oral Contributions

[MS3-05] In Situ Plate Screening to Evaluate the Dehydration Effect on Protein Crystals

^{a a,b a,b,c}

Pierre Aller, Alice Douangamath^a, Petra Lukacik, Juan Sanchez-Weatherby^a, Isabel Moraes I, and Jose Brandao-Neto^a

^a *Diamond Light Source, Harwell Science and Innovation Campus, Didcot, OX11 0DE, England*

^b *Research Complex at Harwell, Rutherford Appleton Laboratory, R92, Didcot, OX11 0FA, England*

^c *Membrane Protein Laboratory, Imperial College, London SW7 2AZ, England*

E-mail: pierre.aller@diamond.ac.uk

Keywords: high throughput; in situ plate screening; dehydration.

Crystal dehydration is a post-crystallization technique that can potentially improve the diffraction of macromolecular crystals. There are currently several ways of undertaking this process; however, dehydration experiments are often limited in their throughput and require prior manipulation of the samples. In the present study, we have implemented a high-throughput procedure for undertaking dehydration experiments using the *in situ* plate-screening setup on beamline I04-1 at Diamond Light Source. We have applied this method to a novel membrane-associated protein involved in K⁺-channel regulation (details of the structure will be published elsewhere) [1] and on a membrane protein, which shows promising initial results. The technique (used either in the home laboratory or at the synchrotron) avoids handling of the crystals and provides a direct X-ray assessment of the effect of dehydration for a broad range of conditions in a single experiment.

[1] Douangamath A, Aller P, Lukacik P, Sanchez-Weatherby J, Moraes I, Brandao-Neto J. (2013). *Acta Crystallogr D Biol Crystallogr.* 69(Pt 5):920-923