

Technology Offer

Novel 96-well screens for protein crystallization

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Crystallization is the limiting step in X-ray structure determination of biological macromolecules. As crystallization experiments can be largely automatized, the diversity of precipitant solutions is often the determinant factor to obtain crystals of high quality.

Technology

Scientists from the Max-Planck-Institute of Biophysics have developed two novel 96-well screening kits for protein crystallization:

- The ethoxylate screen is centered on three ethoxylate-based organic polymers as precipitants and various additional additives to promote crystal growth.
- The pentaerythritol screen is based on two pentaerythritol polymers and various additional additives to promote crystal growth.

The crystallization screens were tested on various non-standard proteins from bacteria and archaea and allowed the structure determination of several never-characterized proteins. The crystals frequently diffracted to a higher resolution than those obtained with commercially available screening kits (**Figure 1**). Moreover, crystallization hits were rarely similar among the different precipitants and, in comparison, with already available crystallization screens. Hence, the presented crystallization screens are an efficient tool to complement other screens and to maximize the likelihood of growing crystals suitable for X-ray structure determination.

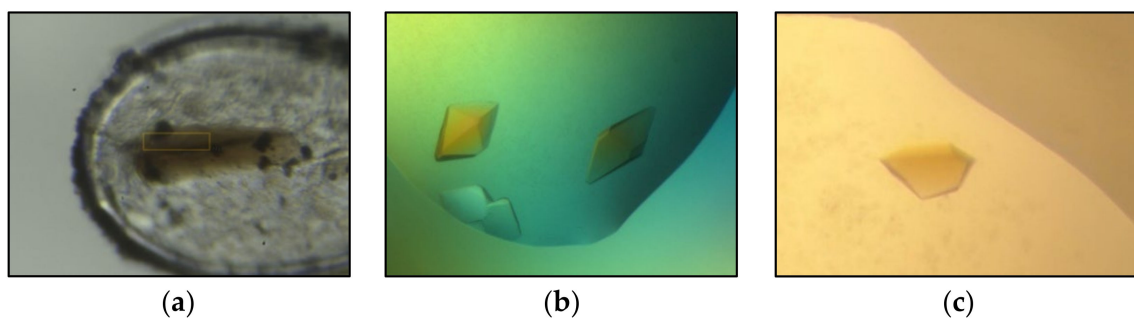


Figure 1: Best diffracting crystals obtained with the ethoxylate polymer-based screen.
 (a) DCCP (1.6 Å), (b) S-25-PT (2.1 Å), (c) BCR-QONP (2.5 Å).

Publication

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