Protein Crystallisation Condition Screening at UQROCX

The UQROCX facility supports the building of protein crystallisation condition screening experiments by maintaining: ***commercial conditions*** screens; two ***Mosquito*** liquid handlers; and two ***RockImagers.*** The ***RockMaker*** software is a comprehensive information management system within which experiments are easily built, assessed and analysed.

Building a condition screening experiment

Condition screening experiments are designed in RockMaker and built using the Mosquito liquid handlers. A bar code generated in RockMaker is attached to the screening plate.

Condition screening experiments are performed in **96-well** plates.

While the most common crystallisation format used within the UQROCX is the **hanging drop** vapour diffusion experiment, the facility also supports **sitting drop** formats and **LCP** format.

The Mosquito liquid handlers are flexible instruments capable of building experiments using volumes from **50 nL to 500 nL**.

Two standard hanging drop protocols are maintained by UQROCX, one for use with the standard plate seal and one for use with the UV plate seal.

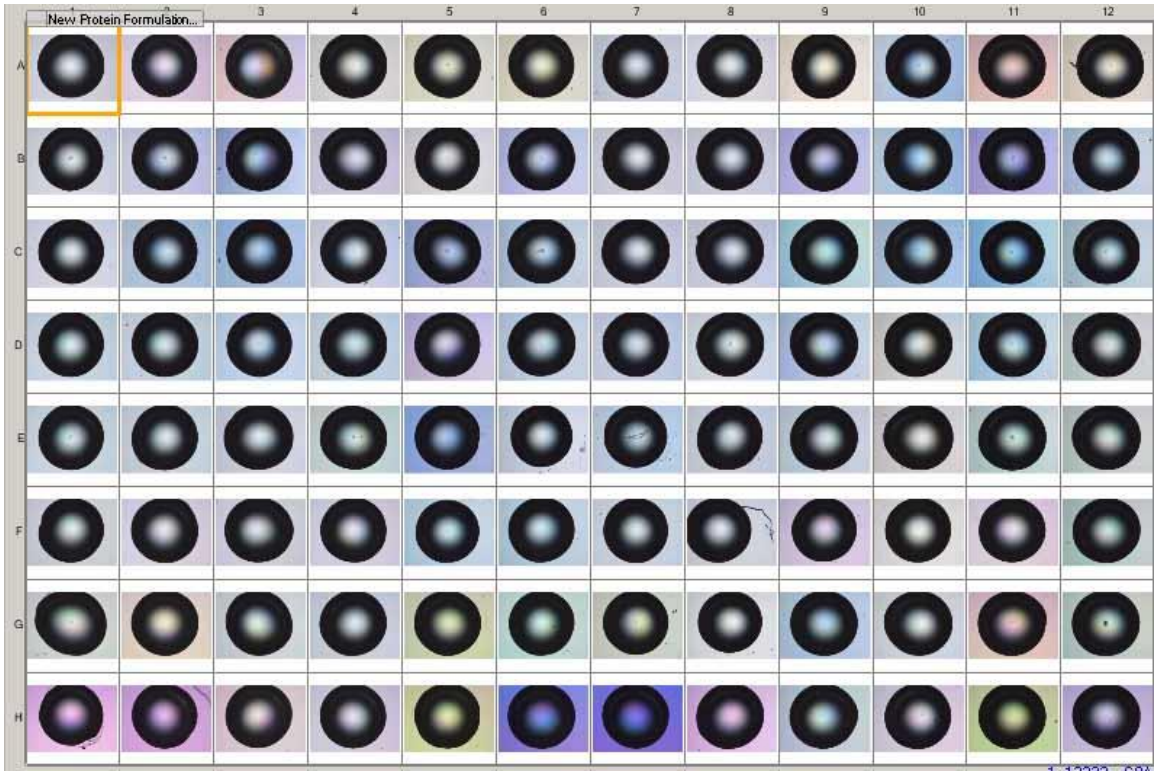
Two temperatures can be explored using the RockImagers. One imager is maintained at **20 ^{o}C** and the other at **8 ^{o}C.**

Imaging a condition screening experiment

To obtain images in the RockImagers all experiments must be designed in the RockMaker software and identified by the generated bar code.

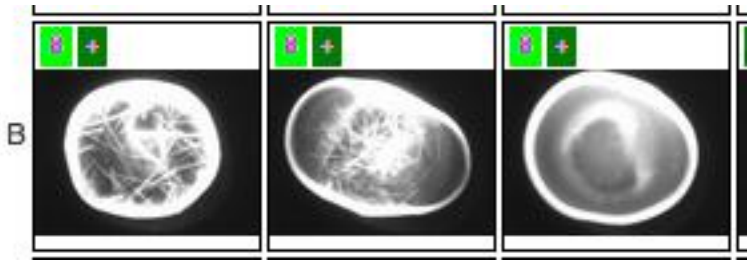
The sealed and bar coded plate is put into a RockImager. This plate will be imaged automatically on the days you specified when designing your experiment in RockMaker.

If you have used a UV- seal, **UV imaging** is available in the 20 °C RockImager.



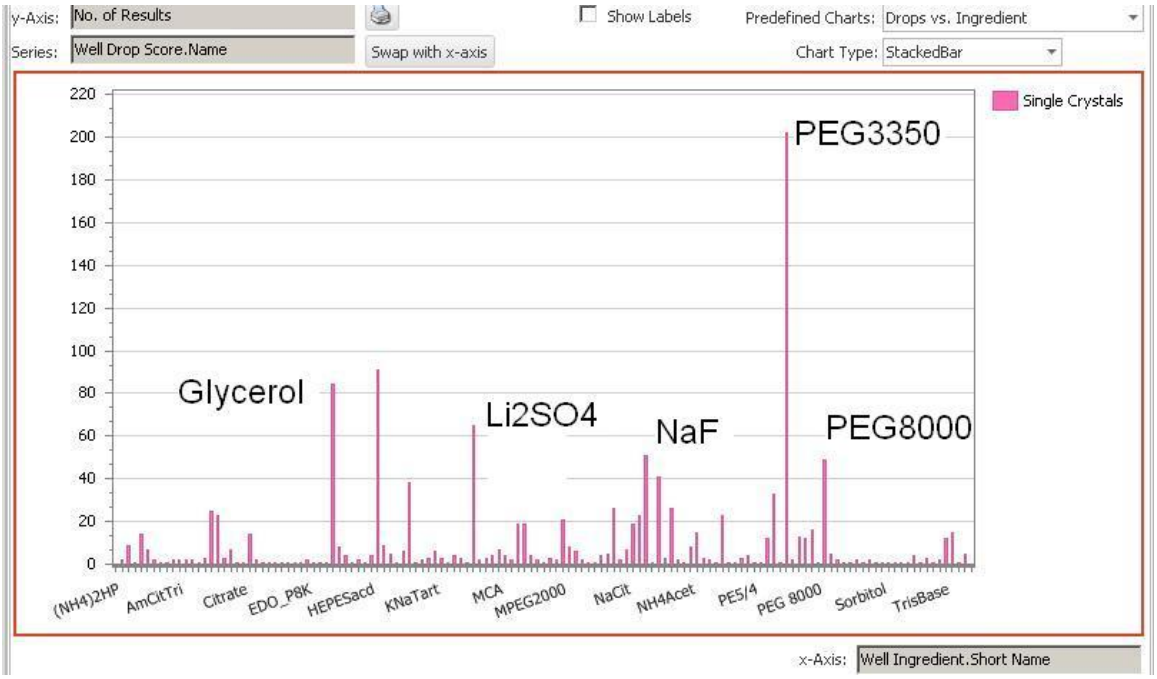
Assessing a condition screening experiment

The images collected by the RockImager are available for assessment in RockMaker. You can inspect and score all images.



Analysing a condition screening experiment

Within RockMaker you can analyse the outcomes of your screening experiments using the Search feature. Here your scoring is critical as you are interested in extracting the effects of pH, precipitant, salts etc on the score your experiments achieved.



Useful reference, "Lessons from ten years or crystallisation experiments at the SGC"

Acta Cryst. (2016). D**72**, 224-235