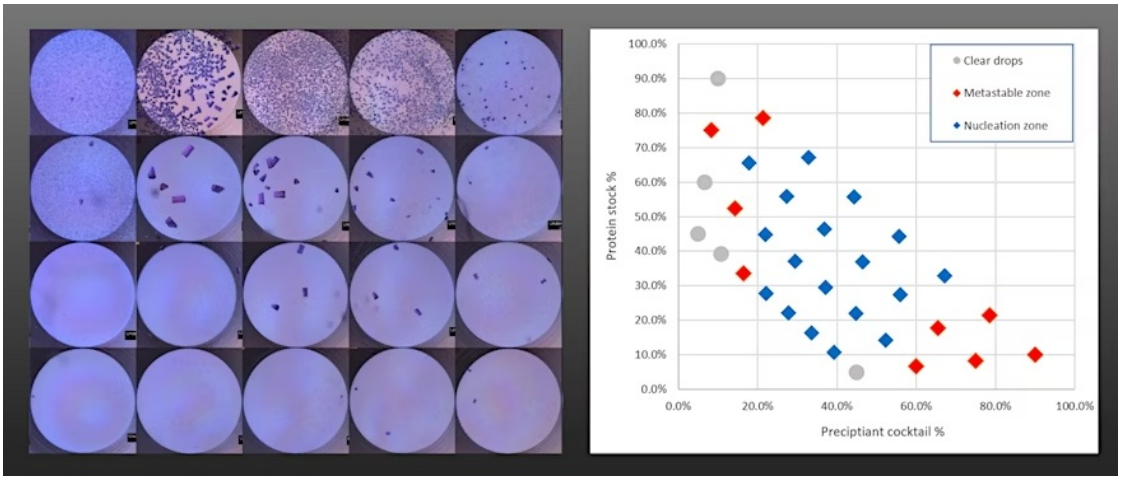
Douglas Instruments
Success in protein crystallization

Dear Crystallographer

Oryx robots have a range of optimization experiments to help guide your optimization workflow. Some examples are below, including flexible software for designing bespoke gradients, as well as guided experiment scripts for phase diagrams and seed stock optimization.

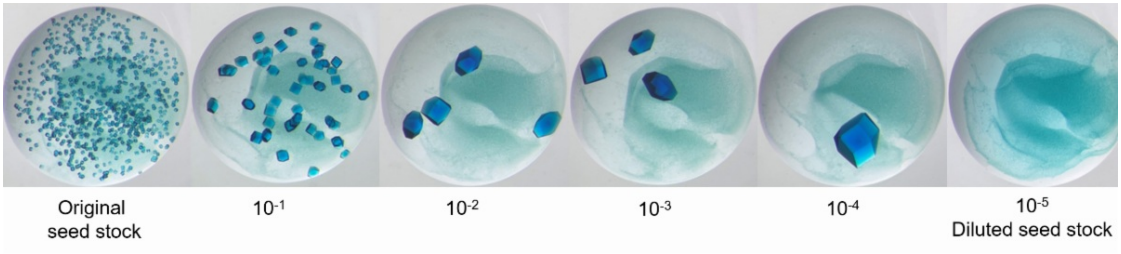
Phase diagram optimization

Reveal the phase diagram for ***your*** protein and crystallization condition. The recently developed **automated phase diagram optimization** experiment allows you to systematically map the boundaries of the phase diagram. This is ideal for guiding sample preparation for advanced data collection methods such as serial data collection, microED and neutron diffraction. Both microbatch-under-oil and vapor diffusion setups are available.



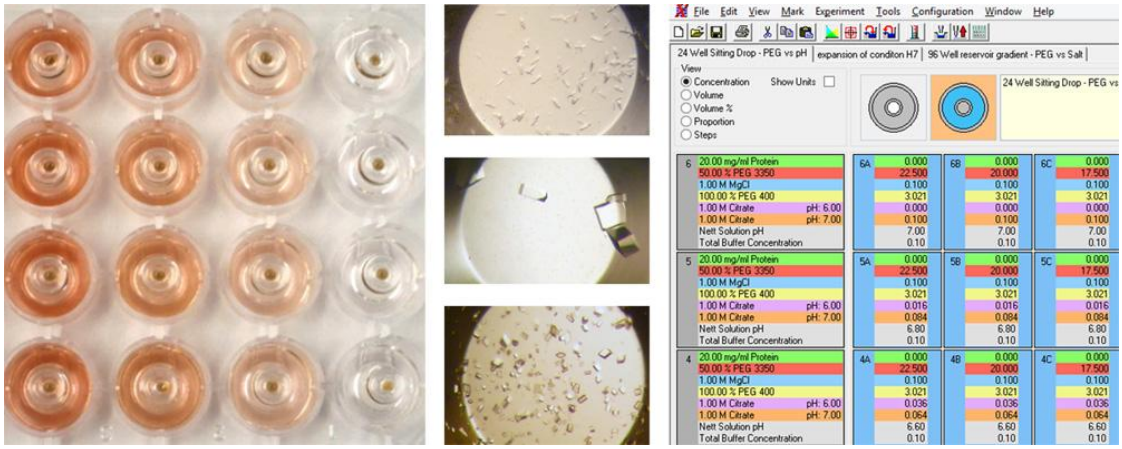
Seed stock optimization

This experiment is designed to identify the appropriate dilution of seed stock quickly. Up to 12 seed stocks can be tested with up to 8 precipitants, in a combinatorial style experiment design. Ideally, work with metastable wells, which can be identified from the phase diagram optimization, or **rMMS microseeding**.



XStep optimization (Oryx8)

This software provides a spreadsheet like environment for designing bespoke optimization experiments. **XStep** has tools for creating gradients and (up to 7d) multivariate auto design experiments, including multi-buffer pH control. The same software can be used for microbatch-under-oil optimization and to fill reservoirs. For vapor diffusion optimization, up to 6 ingredients including water are dispensed to each reservoir well. Typically, total reservoir well volumes from 25 - 500 µL are dispensed.



Meetings, Conferences and workshops

Visit our booth for the latest on our new experiment scripts for phase diagram optimization and other developments.

Also pick up a free microseeding tool kit for **rMMS**.

AsCA 2025, Taipei, Taiwan
1 December - 6 December 2025

IUCr 2026, Calgary, Canada
11 August - 19 August 2026

We look forward to seeing you there!

Best regards,

Douglas Instruments
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