Rock Imager 1000 FRAP

<http://www.formulatrix.com/demosite/protein-crystallization/products/rock-imager-1000/index.html#tabbed-nav=tab6&tabbed-nav-sonicc=tab3>

**Screen for Optimal Protein Crystallization Conditions with FRAP**

FRAP (Fluorescence Recovery After Photobleaching) is an optical technique that has been broadly adopted in the bioscience community to quantify two dimensional lateral diffusion rates of fluorescently labeled molecules in a thin film layer.

One of the main factors for successful crystallization in LCP is the ability of the protein to diffuse within the lipid bilayer. The diffusion rate of the protein is affected by protein aggregation, structural properties of the LCP, and the chemical environment. The diffusion rate can be determined by Fluorescence Recovery After Photobleaching (FRAP), which measures the amount of time required for the fluorescence intensity of a tagged protein to reestablish itself within a small area in the LCP drop that has been subject to optical bleaching.

* Key Features
* System Diagram
* Recovery Curve
* Compound Zoom
* See It In Action
* References

**Perform 96 Experiments in Under 1 Hour**

Each complete LCP-FRAP process takes about 15-20 minutes. One way of bypassing the long waiting time is by collecting only the end state fluorescence intensity. Only mobile fraction results are measured through this high throughput mode. Although the diffusion rate is absent from this method, researchers are still able to identify positive wells by solely relying on mobile fraction analysis. Most often, a mobile fraction >0.20 (20%) is a good threshold for indicating a positive crystallization condition.

In most cases, mobile fraction alone is sufficient for researchers to identify positive conditions. Nonetheless, one might still want to investigate the complete recovery curve to get an inside look at how the curve recovers and the diffusion rate.

FRAP allows the user to choose specific wells to perform a complete recovery LCP-FRAP assay. The recovery curve is plotted and fitted with a Bessel function to retrieve the diffusion rate.

**Easy Data Review**

The entire FRAP mobile fraction data is grouped into a canvas view with a color coded background to allow the user to identify positive wells at a glance. Users can mark positive wells in the software for future reference.