Rock Imager 1000 UV Imaging

<http://www.formulatrix.com/demosite/protein-crystallization/products/rock-imager-1000/index.html#tabbed-nav=tab4>

**Determine If Your Crystal is Protein or Salt with UltraViolet (UV) Imaging**

The UV imaging option allows you to easily differentiate between protein and salt crystals. Protein crystallization drops are illuminated with UV light and the fluorescence generated from aromatic amino acids like Tryptophan are detected to create an image.

The UV imaging option is built into our Rock Imagers with all of the same automated features including automated imaging, extended focus imaging, and regions of interest. Our UV imaging solution uses 100% UV optimized components: UV grade optics, UV sensitive camera and UV lighting. This is critical to achieving the best image quality and highest imaging speed possible.

**Quickly Find Your Crystals**

In Rock Maker, you can quickly scan your plate to locate crystals in virtually no time. Click the button below to see how much easier a plate imaged in UV light is to scan for crystals.

**Imaging Implementation of UV Without Sacrificing Visible Image Quality**

The UV imaging scope is built-in as a separate microscope adjacent to the visible imaging optics so that both designs can be optimized for the specific wavelengths being used. The color camera and 12x continuous zoom optics are incompatible with UV light, so colored imaging, continuous zoom and regions of interest would no longer be available if Visible and UV were combined into one path.

Our solution is to use two uniquely optimized and adjacent lightpaths so that no sacrifices are needed. Precision stages are used to move the sample from one microscope to the other with precise registration between the two images. The dual light path solution also allows us to properly correct for chromatic aberrations that would not be possible with a single path configuration.

**For a budget friendly option, a single light path design is available where the visible optics and camera are shared with the UV imaging mode. This option is only available with black and white imaging and fixed objects on a turret.**

**Rely on Autoscoring to Find Your Crystal Hits Quickly**

UV images are autoscored allowing you to quickly find your crystals without going through numerous empty drops. An advanced proprietary algorithm is utilized to analyze intensity, sharpness, edges and objects to accurately score your drops as positive or negative hits. Clear drops, even if they are highly fluorescent, will be classified as negative hits reducing your time spent viewing images.

**Visualize Microcrystals with High Magnification Objectives**

Rock Imager UV comes in two zoom options: Fixed Zoom and Compound Zoom. The Fixed Zoom option is available with one of the lenses listed in the Table to the left. The Compound Zoom option includes all three lenses on a motorized wheel.

UV optimized optics provide high contrast images with the ability to see crystals as small as 2 μm. In the image to the left, individual protein crystal needles 2 μm in width are visualized with UV. The UV, LED and condenser lenses are positioned to maximize the intensity of the UV illumination in order to boost the protein fluorescence signal strength. Also, the average RMS contrast (standard deviation of the pixel intensities) is optimized to increase visibility of fluorescing crystals.