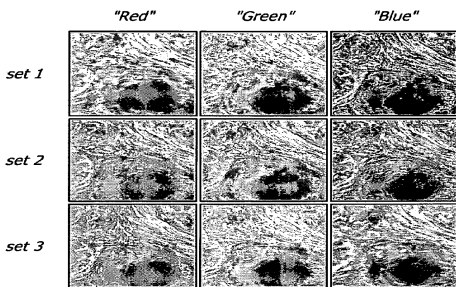


Customer Application: Automated scanning cytometry

Sample Type: Cells

Captured Images/Data:



Chromatic aberration based autofocusing. (set 1) blue in focus (set 2) green in focus (set 3) red in focus

Technique/Settings of application use:

Customer uses chromatic aberration for multiplanar image acquisition in an automated scanning cytometry system. Continuous scanning eliminates microscope stage acceleration and speeds up image acquisition while maintaining high resolution.

Improvement over Conventional Systems

Automated scanning cytometry requires constant focus adjustment for each cell measured. This is accomplished by acquiring multiple images with different depths of focus in the z direction and calculating the required focus correction. Systems using fiber optics or beam splitters to create multiple simultaneous image planes in the z direction are plagued by axial or spatial displacements of the image planes. The customer eliminated displacements by using chromatic aberration, i.e. the fact that different wavelengths are focused at different distances from the lens, to create multiplanar image planes for the same field of view. These are manipulated by filter wheels with different kinds of glass. The OneLight tunable light source can replace these. Its ability to scan through wavelengths enables scanning of image planes along the z axis.

Utility of OneLight to Customer

Significance of the technique to Life Sciences:

Scanning a microscope slide to count and measure cells can take over an hour. Simultaneous multiplanar image acquisition can speed up the process enormously.

References:

Price, J., et al, Burnham Institute for Medical Research (2010) *Automated Scanning Cytometry using Chromatic Aberration for Multiplanar Image Acquisition*, U.S. Pat. 2010/0172020