Quantitation of Nuclear Translocation Events Using ImageStream®
Multispectral Imaging Cytometry

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Abstract
Signal transduction pathways regulate most cellular biological processes and have a critical influence on cellular migration or metastasis. Typically only when a signaling molecule is activated or its receptor is occupied do we detect a change in the signal transduction pathway. The ImageStream® Multispectral Imaging platform allows for discrimination of cells not feasible with standard flow cytometry.

Development of ImageStream® technology was partially supported by NIH grants R44 CA01798-02, R43 GM58956-01 and R43 CA94590-01.

Figure 1: Visualization of NFκB Nuclear Translocation in A549 Cells Using Immunofluorescence Microscopy

Figure 2: Visualization of NFκB Nuclear Translocation in A549 Cells Using ImageStream® Multispectral Imagery

Figure 3: Quantitation of NFκB Nuclear Translocation Using Image Cytometry

Figure 4: Visualization of NFκB Nuclear Translocation in THP-1 Cells Using Immunofluorescence Microscopy

Figure 5: Visualization and Quantitation NFκB Nuclear Translocation in THP-1 Cells Using ImageStream® Multispectral Imagery

Conclusion
This study demonstrated the utility of ImageStream® technology to characterize nuclear NFκB translocation in adherent cells. These data demonstrate the powerful utility of flow cytometry. The IDEAS™ analysis software quantifies over 200 morphometric and cytometric parameters, and ImageStream® Multispectral Imaging Cytometry allows for discrimination of cells not feasible with standard flow cytometry.

NFκB Peak Intensity

Figure 4: Visualization of NFκB Nuclear Translocation in THP-1 Cells Using Immunofluorescence Microscopy

Figure 5: Visualization and Quantitation NFκB Nuclear Translocation in THP-1 Cells Using ImageStream® Multispectral Imagery

Conclusion
This study demonstrated the utility of ImageStream® technology to characterize nuclear NFκB translocation in adherent cells. These data demonstrate the powerful utility of flow cytometry. The IDEAS™ analysis software quantifies over 200 morphometric and cytometric parameters, and ImageStream® Multispectral Imaging Cytometry allows for discrimination of cells not feasible with standard flow cytometry.