BD CellView™ Image Technology
Fast and reliable real-time imaging

BD

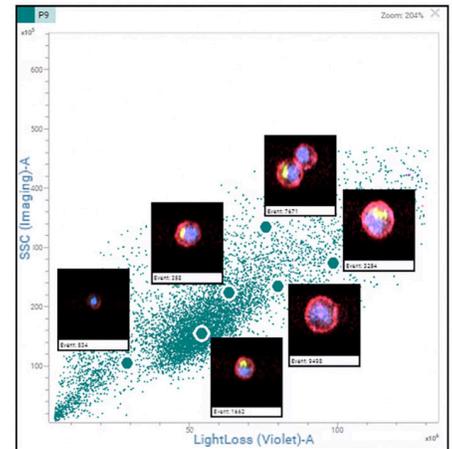## What is BD CellView™ Image Technology?

BD CellView™ Image Technology is real-time imaging (RTI) technology that combines flow cytometry data with spatial and morphological insights. The technology enables answering complex biological questions quickly, such as how cells grow, function and interact, or studying locations of viruses or proteins within a cell. The technology seamlessly integrates image and flow data on each event and can easily visualize the image for acquisition. It enhances fluorescence activated cell sorting (FACS) with live visual inspection of target cells and novel gating strategies based on real-time image feature analysis using spatial distribution of fluorescence capabilities.

How does real-time imaging work?

In contrast to camera-based technologies that combine imaging and flow cytometry, BD CellView™ Image Technology does not use a camera to image cells, which enables imaging at much faster rates. Camera-based technologies are limited by closely controlled fluidics and cannot be used for high-speed droplet cell sorting. BD CellView™ Image Technology deploys an optical multiplexing approach to image cells using the electrical and optical components used in flow cytometers.
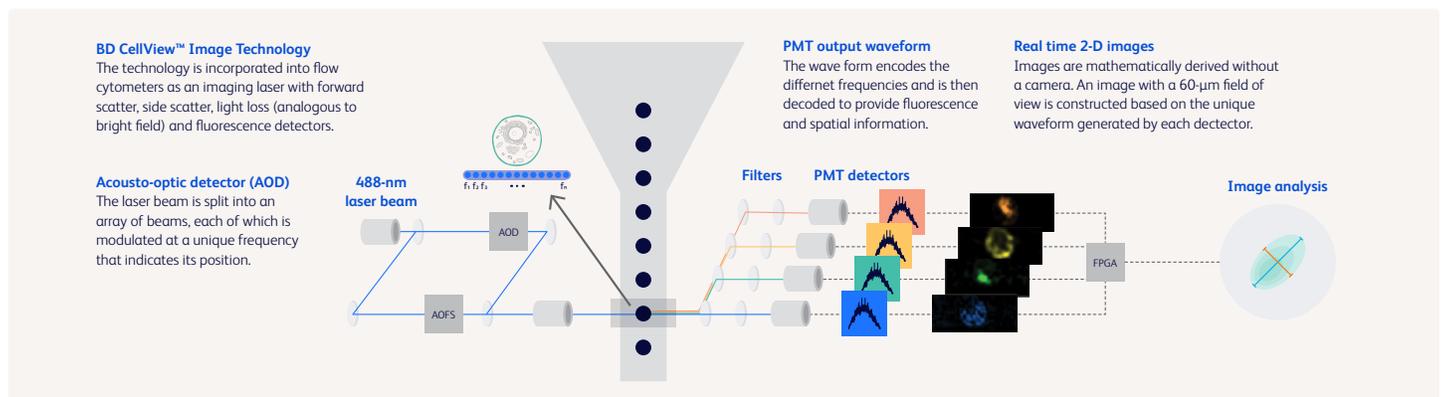
Why is it important?

This method allows faster throughput than camera-based technologies. The image data can be acquired and quantified in real time at high speed for analysis and sorting as the sample is being acquired. Although imaging in flow is not a completely new concept, it is severely limited by throughput. With BD CellView™ Image Technology, that barrier is broken and cell images can be seen real-time at flow cytometry speeds.

See cells like never before and obtain detailed information that was previously invisible in traditional flow cytometry experiments.

Principles of BD CellView™ Image Technology

BD CellView™ Image Technology
The technology is incorporated into flow cytometers as an imaging laser with forward scatter, side scatter, light loss (analogous to bright field) and fluorescence detectors.

Acousto-optic detector (AOD)
The laser beam is split into an array of beams, each of which is modulated at a unique frequency that indicates its position.

488-nm laser beam

AOD

AOFS

$f_1 f_2 f_3 \cdots f_n$

Filters

PMT detectors

PMT output waveform
The wave form encodes the differnet frequencies and is then decoded to provide fluorescence and spatial information.

Real time 2-D images
Images are mathematically derived without a camera. An image with a 60-μm field of view is constructed based on the unique waveform generated by each dectector.

FPGA

Image analysis

Unlock cellular secrets with BD CellView™ Image Technology on the BD FACSDiscover™ Platform family of instruments

BD FACSDiscover™ A8 Cell Analyzer

BD FACSDiscover™ S8 Cell Sorter