

HUMAN HEALTH

ENVIRONMENTAL HEALTH



FOR BETTER
QUALITY
IMAGES

Velocity Restoration

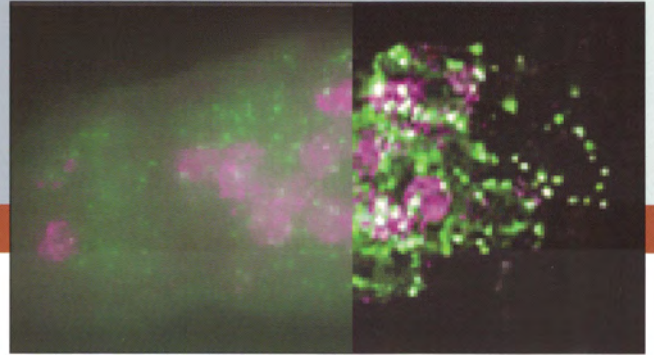
4D volume restoration for wide field and confocal imaging data



Quorum

light at work

4D VOLUME RESTORATION FOR WIDE FIELD AND CONFOCAL IMAGE DATA



Volocity Restoration removes out-of-focus haze to produce confocal quality image data.

Volocity® Restoration provides a choice of proven restoration algorithms to improve the quality and resolution of 3D data sets quickly and easily. Applied to standard wide field fluorescence microscope images, the result is superior quality confocal data. Confocal, spinning disk and multi-photon images may reveal even more detail through the removal of out-of-focus haze. Volocity Restoration is an essential imaging tool and supports a wide range of file formats from confocal microscopes and wide field systems.

Confocal quality images from a wide field microscope

When you acquire image data from a wide field microscope, the images can contain out-of-focus as well as in-focus information, created as a product of the optical properties of the microscope. This unwanted haze can be removed quickly and easily using Volocity Restoration so that you can achieve confocal quality images without using a laser scanning confocal microscope.

Even if your images were acquired using a laser scanning, spinning disk or multi-photon microscope, the image quality may benefit from applying Volocity Restoration.

Includes two restoration algorithms

Two options are included in the product; Fast Restoration and Iterative Restoration. Which one you choose will depend on how you wish to use the resulting images.

Key Features

- Includes Fast Restoration, an ultra-fast routine for improvement of resolution in X and Y.
- Includes Iterative Restoration, an award-winning algorithm for improvement of resolution in X, Y and Z.
- Calculated PSFs for confocal, spinning disk, two photon and wide field microscopes can be created, or use a measured PSF from your microscope.
- Use with a wide range of file formats from confocal and wide field microscopes.
- Deconvolve 3D or 4D data sets.
- Batch process multiple data sets for convenience.
- Available for 32-bit and 64-bit Windows®.
- Imaging Computing Server available for faster results
- Upgradeable to RestorationMV providing the high speed capabilities of Microvolution within the Volocity interface

A RANGE OF TOOLS FOR ENHANCED IMAGE QUALITY AND RESOLUTION

Fast Restoration

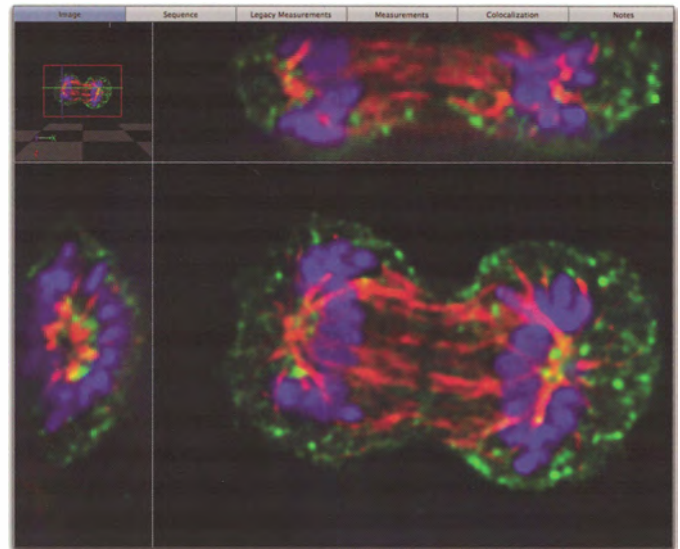
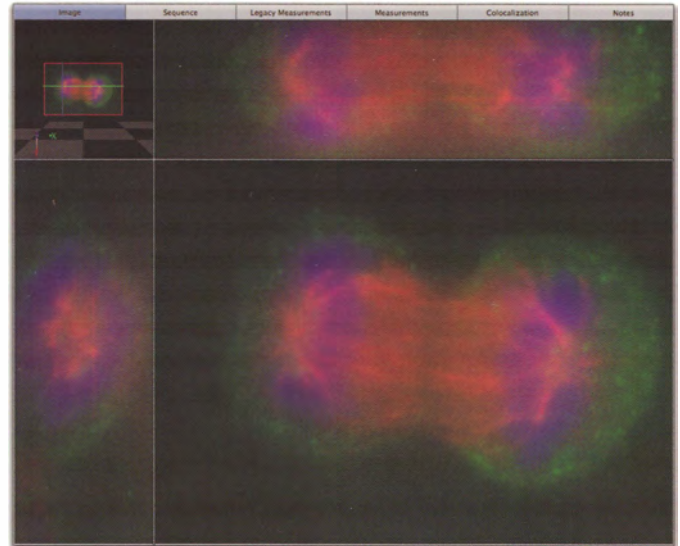
The Fast Restoration algorithm is an ultra-fast routine developed by PerkinElmer, which uniquely uses every voxel in the volume in a single pass process to improve both the visual quality and the precision of the result. This feature is extremely fast to compute and produces superior results when viewed in XY. Fast Restoration will significantly improve the visual quality of your images, to reveal details that would otherwise be obscured, allowing you to successfully explore your data in 2D or in 3D using Volocity Visualization. In combination with Volocity Acquisition, Fast Restoration is available on-line to give immediate improved results during an experiment.

Iterative Restoration

The Iterative Restoration algorithm is an award winning restoration algorithm developed by PerkinElmer from published Maximum Entropy techniques. It uses a restorative technique that reassigns out-of-focus haze rather than subtracting it from the data. Iterative Restoration is a more computationally intense process and therefore takes longer to produce results than Fast Restoration. However, it will not only provide an improvement in resolution in X and Y, but very importantly, also in Z. The resultant images can be used for making intensity and morphological measurements as well as for visualization purposes.

Volocity for 64-bit Windows® – a faster option for restoration

Volocity Restoration is available for 64-bit and 32-bit Windows®. This operating system was created specifically for applications such as Volocity that use large amounts of data. Benchmark tests have confirmed that processes including Iterative Restoration are significantly faster using the 64-bit version of Volocity and greatly enhanced with the addition of RestorationMV module.



Volocity Restoration can be used with wide field and confocal image data. These images were acquired with a wide field system and are shown before and after deconvolution with Fast Restoration.



Velocity, a family of integrated software products that can be used independently for image acquisition or analysis, or grouped together to provide a complete range of cellular imaging tools. Velocity is available for Windows® platforms.

Velocity Acquisition	High performance image capture software controlling a wide range of microscopes, cameras and imaging accessories for 3D live cell imaging applications
Velocity Visualization	Interactive multi-channel time-resolved 3D rendering and publication software for wide field and confocal image stacks
Velocity Quantitation	Volumetric measurement and analysis software for quantitative fluorescence imaging Image
Velocity Restoration	deconvolution software improves image quality of wide field and confocal systems
Imaging License Server	Flexible cross platform software licensing to combine and share software licenses across networks
Imaging Computing Server	Advanced computing power improves performance of processing intensive tasks
Velocity FRAP plug-in	Extends the functionality of Acquisition and Quantitation for on-line FRAP acquisition and analysis
Velocity Ratio plug-in	Extends the functionality of Acquisition and Quantitation for on-line Ratio acquisition and analysis



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Images reproduced by kind permission of the following scientist: Page 3: GFP-positive neutrophil granulocytes. Courtesy of Dr. Stephen Renshaw, University of Sheffield.

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