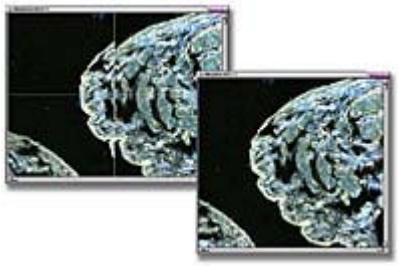
Image-Pro DISCOVERY

The Enhanced Image Analysis Solution form the Image Pro- Family



Build a larger image from multiple,smaller location acquisitions with stitching and tiling tools.

Image-Pro Discovery provides easy-to-use measurement and analysis tools needed for various scientific, medical, and industrial applications. It offers all the functionality of Image-Pro Express along with an extended list of enhancement and measurement tools and the ability to add applications specific plug-ins. Image-Pro Discovery is the ideal solution for research professionals who need a solution with advanced measurement and image analysis capabilities, but do not wish to write their own macros or plug-ins.

Key Benefits

- **Spend Time on What's Important**– Image-Pro Discovery's user-friendly environment enables you to spend less time learning to use your software and more time analyzing and learning from your images.
- **Get Repeatable Results** -Easily guarantee fast and repeatable results by taking advantage of Image-Pro Discovery's many measurement tools.
- **Add Multi-Dimensional Imaging** -Further extend the functionality of Image-Pro Discovery with the following integrated plug-in modules: Scope-Pro automated microscope control, AFA advanved fluorescence acquisition, SharpStack image deconvolution, and 3D Constructor three-dimensional reconstruction and measurement.
- **Grows with Your Needs** –As your imaging requirements grow, you may upgrade to the full power of Image-Pro Plus easily and at an affordable price.

Features of Image Pro Discovery version5.1

- Acquire
- Alignment
- Composite Imaging
- Dye Management
- Enhance
- Process
- Filter
- FFT
- Color Channels
- Calibrate
- Count and Size
- Measure
- Analyze
- Annotate
- Image Database
- Report Generator
- Print and Publish
- Internet Support
- Stiching and Tiling
- Add Multi-DImensional Imaging
- Image Data and File Format Support

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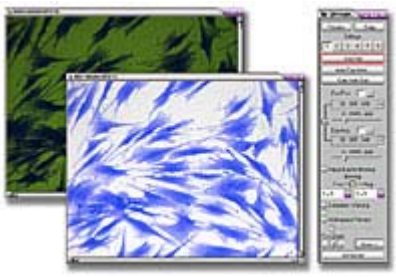
Acquire

- New AutoSet feature takes the guesswork out of setting exposure parameters
- Acquire files directly from camera, scanner, disk, or CD-ROM
- Capture multiple images after user-specified delay/acquisition time
- View with live preview on your computer monitor
- Acquire, create, and playback a sequence (stack) of images
- Visit our driver support page for the latest list of supported acquisition hardware



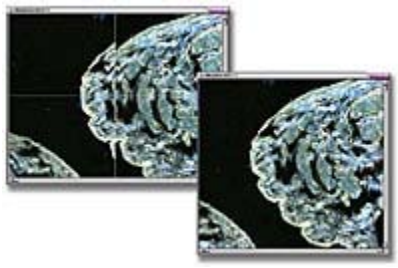
The new AutoSet feature assists in setting optimal color balance exposure parameters.

Alignment

- Align individual sets or sequence images automatically or manually
- Correct for translational, rotation and scailing

Composite Imaging

- New image stitching and tiling tools
- New automatic alignment of image stacks to correct for stereo, rotational, and other types of shifts
- Create in-focus composite images from partially in-focus source image stacks with EDF (Extended Depth of Field)
- Use topographic maps for composite in-focus images
- Automatically select the most in-focus frame from a stack
- Create composite in-focus images with maximum local contrast, maximum through depth contrast, maximum intensity and minimum intensity
- Create composite images from an infinite number of source gray scale images with the Color Composite Tool
- Preview all image analysis processes on image stacks with the Sequence Gallery



Build a larger image from multiple, smaller location acquisitions with stitching and tiling tools.

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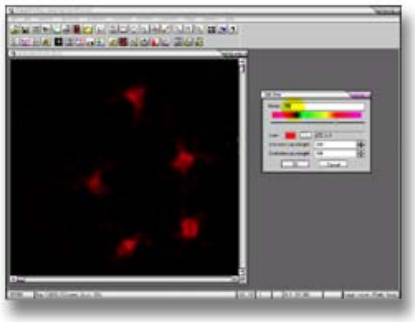
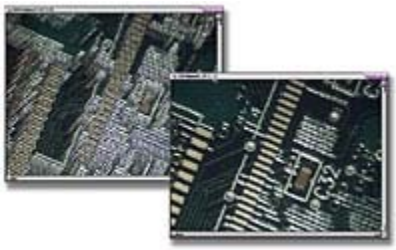
Dye Management

- Lookup tables for fluorescent dyes to automatically assign proper color
- Create custom listings



Enhance

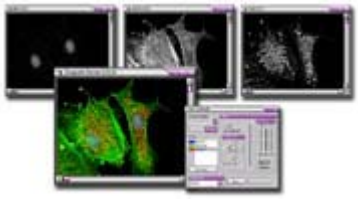
- Edit image intensity level with Display Range
- Control image Brightness, Contrast, and Gamma with Contrast Enhancement
- Enhance with Best Fit, Linear, Bell, Logarithmic, and Exponential Equalization tools
- Invert, reset, and apply contrast to images
- Use automatic image inversion
- Simultaneously view entire image in one window and a magnified area in a second window with Local Zoom
- Use Dye Manager to apply dye tints to gray scale images by choosing emission wavelength



Align individual or sequence images for translation, rotation, or scaling with Alignment Correction.

Process

- Use Background Subtraction and Correction
- Reduce image to two intensity levels with Threshold
- Use extensive list of Filters (see details below)
- Perform spatial (bi-linear scale, decimation, rotate, warp, transpose, reflect) logical arithmetic, and image alignment operations
- Combine images with Image Overlay
- Create, print, or save a collage of several images with Mosaic Image. View all images in a sequence with Sequence Gallery



Create composite images from an infinite number of source gray scale images with the Color Composite Tool

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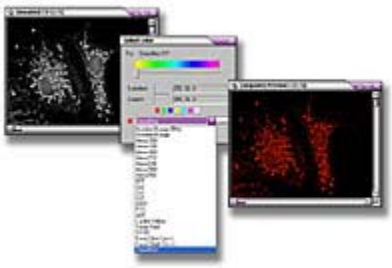
Filter

- Work with Filter dialogs that include descriptions and interactive preview windows
- Use Enhancement filters that include Low-Pass, Hi-Pass, Gaussian, Hi-Gaussian, Sharpen, Flatten, Median, Rank and Local Equalization
- Process objects with Morphological filters which include Erode, Dilate, Open, Close, Top Hat, Well, Branch/End, Watershed, Thinning, Pruning, Distance, and Reduce
- Apply filters to individual frames or to entire sequence



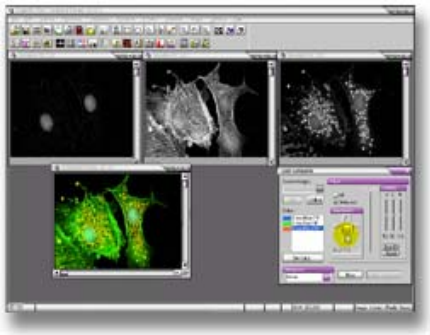
Apply lookup tables to monochrome fluorescence images using the Dye Management tool.

Fast Fourier Transform (FFT)

- Create forward and inverse transforms
- Edit the spectrum directly including Low-Pass, High-Pass, unsharpen, spike cut, and spike boost
- Save and reload data

Color Channels

- Extract and merge multiple color channels (including RGB, HSI, HSV, and YIQ) simultaneously with Color Channel tools
- Use color information to separate objects from background
- Segment image based on the color channel histogram or color cube
- Set pre-defined and custom color spreads (ranges) with the Pseudo-color tool



Calibrate

- Work with intensity or spatial measurements
- Create and display spatial calibration markers
- Use pre-defined spatial calibration units
- Save and recall all calibrations

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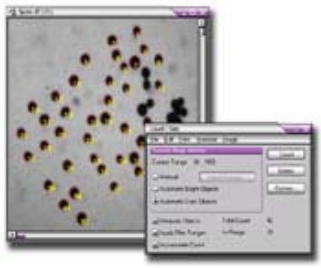
Count and Size

- Count and Size objects automatically
- Measure areas, perimeters
- Use colors to separate and measure objects in color images
- Export measurements to statistical and spreadsheet packages via DDE
- Display measurements as histograms
- Manually tag, count and classify objects



Measure

- Use weighted centroid, clumpiness, heterogeneity, min/max density, dendrite length, end point, fractal dimension, margination, and additional perimeter measurements
- Measure best-fit line, arc, and circle with metrology tools
- Measure lengths, areas, perimeters, and angles
- Calculate max, min, and average thickness between lines
- Use the Caliper Tool for edge detection and measurement

Obtain quick distance measurements with display on the image
Image courtesy of Triptar Lens Company.

Analyze

- Collect data from multiple images with Data Collector
- Calculate straight line, circle, irregular line, or area histograms
- Analyze percent area of multiple threshold levels
- Define and manage multiple areas of interest (AOI) in a single image
- Analyze RGB, HSI, HSV, or YIQ content of color images
- Combine image with background correction for precise intensity or optical density measurements
- Display background corrected line profiles
- Output intensity map in ASCII format
- Obtain quick distance measurements with display on the image

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Annotate

- Work with non-destructive image annotation
- Add text, simple graphics, and arrows
- Modify palette or colors

Image Database

- Use built-in database or archive, manage, and extract knowledge from your images with IQbase™
- Locate images through keyword searches or view in a thumbnail gallery
- Print full-size or image galleries from inside the database
- Batch process multiple discreet images
- Perform SQL multi-parameter searches

Report Generator

- Create customized reports with images, data, and text
- Create and save report templates

Print and Publish

- Print frames from a sequence or montage of single images with the Mosaic printing feature
- Output gray-scale and color images to Windows printers
- Maintain complete control over image position on page
- Print tiles to make poster size prints
- Use the Test Strip feature for selection of best output
- Screen capture individual images or entire screen

Internet Support

- Send e-mail messages within Image-Pro Discovery
- Review , send, and receive data over the Internet using IRC (Internet Relay Chat) within Image-Pro Discovery
- Support for FTP Protocols

Stitching and Tiling

- Build a large Image from multiple smaller images taken from location acquisitions Use with or without automated stage

Add Multi- Dimensional Imaging

Includes Set Manager for image sets. Extend the functionality of Image-Pro Plus with seamlessly integrated plug-in modules.

- Control and program the movement of your automated microscope, stage, and peripherals with Scope-Pro Plug-in Module
- Manage all combinations of acquisition modes and image sets including Time, Focus (Z-stack), Channel, and Stage Position with Advanced Fluorescence Acquisition (AFA) Plug-in Module

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- Extract clear, sharp images from a stack of hazy planes with SharpStack Plug-in Module
- Explore three-dimensional relationships within and among objects with 3D Constructor Plug-in Module

Image and Data File Format Support

- Read TIFF, IPW, JPEG, Flat (binary), TGA, BMP, PhotoCD, PICT, CUT, PCX, GEL, PCT, and HDF
- Write and convert files to TIFF, IPW, JPEG, Flat, TGA, BMP, PICT, PCX, and EPS
- Stack and Confocal read file support for SEQ (Image-Pro Sequence), STK (Metamorph Stack), PIC (Biorad confocal), LSM (Zeiss confocal), DEB and AVZ (Autoquant Stack), LEI (Leica Confocal), and DM3 (Digital Micrograph)
- Read and write SEQ and AVI files
- Support for 24-, 36-, and 48-bit color; 8-, 12-, and 16-bit gray-scale as well as 32 bit floating point images
- JPEG, LZW, and RLE compression supported
- Batch convert files
- Output data to ASCII, WK1, or XLS for input for spreadsheets
- Transfer images, data graphs and data files via DDE or Clipboard

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