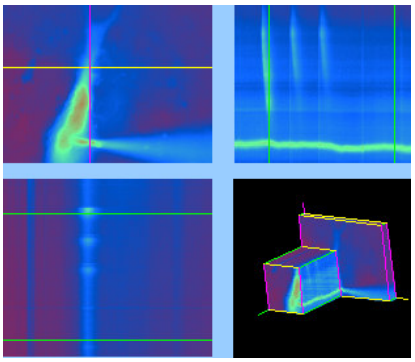
Power Analysis

Power Analysis is a new, flexible image analysis software package with useful tool sets for both confocal and wide-field fluorescence microscopy

- Employs the pioneering OLYMPUS FLUOVIEW user interface
- Based on OLYMPUS FLUOVIEW functionality, with many additions
- Simple mouse-click interface sends files from Imaging Workbench to Power Analysis Station for more in-depth analysis
- Easy connectivity to all INDEC BioSystems products

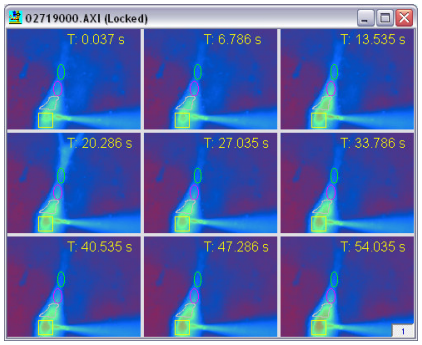


Applications

Visualization	Analysis
3D Rendering	Presentation
FRET (PFRET)	Colocalization
Image maths	Image filtering

Import data in a wide range of formats

- Image stacks: TIFF (multi-image or many single images)
- CLSM file formats: Olympus, Leica, BioRad, Zeiss
- Imaging Workbench
- File types: Image stacks (XT, XYT, XYZ, XYZT), ROI defns



Experiment Editor

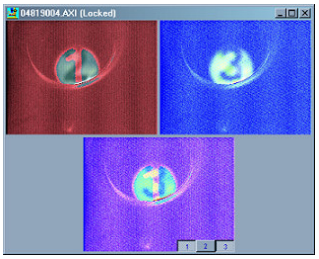
- Extract image series, append files, crop stacks
- Merge image series from different experiments

Export images to the most useful formats

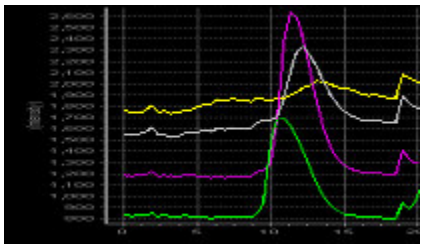
- BMP, TIFF series, AVI movies (compressed or uncompressed), WMV movies, IW AXI

Visualize images and image contents

- Flexible and independent wavelength channel display
  - Each wavelength channel can be displayed in its own window and/or merged arbitrarily with other channels
  - Each channel uses an independent display LUT
  - IW 5 background, shading correction and Fo images appear in separate windows for quick application

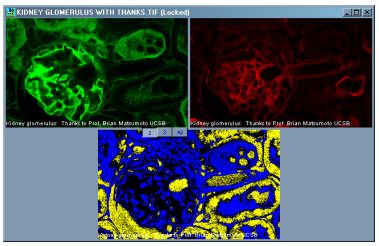


- Merging — data from separate files and analyses can be merged, each preserving its own LUT
- 3D display tools for series experiments (e.g. time and Z series)
  - Cross-sectional views of image stacks
  - Isometric views for ‘at-a-glance’ data display
- On-screen animation of series experiments
  - At variable speeds in Z, T or angle; Rock or Loop
- 3D renderings help reveal structure in series experiments
  - Stereo mode, ‘First’ mode, Brightest mode, Averaged mode
  - Other modes available through image expression evaluator
- Image annotations
  - Intelligent annotations report measurements from image (e.g. intensity, time, X, Y, Z) and are automatically updated
  - Intensity or color wedge with value annotations, spatial calibrations, text



Analysis features include

- Regions of Interest
  - Intensity with time, histogram, statistics
  - Very flexible ROI tools
  - 3D ROIs, each made up of a set of 2D ROIs
  - 3D animations
- Lines of Interest
  - Intensity along line, histogram, statistics
- Calculations
  - Ratios, ion concentrations, ΔF/Fo
  - Background subtraction, image or constant
- Thresholding and masking
- Filtering with many presets (Sobel, Gaussian, DIC image filter, convolution, arbitrary, etc.)
- Image arithmetic
- Mathematical expression evaluator acts on image stacks
- Linear calibrations included in all images
- Histogram
- Volume calculation for 3D objects

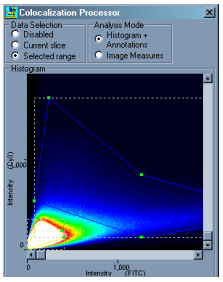


Database of many fluorescent indicators

- Names, wavelengths, Kd values — allow automatic calculation of absolute concentrations, and correct labeling of images
- Add new entries to the database

Colocalization — analysis of correlations (or colocalization) of pixel intensities in multi-channel images

- Create two-dimensional histogram of pixel intensities from the selected channels
- Select subregion in the histogram and highlight pixels in the image which correspond to that subregion
- Show statistics for the subregion
- Archive analyses as experiments
- Image correlation measures
  - Pearson's Coefficient, Overlap, Overlap Indices, and Colocalization Indices
  - Over selected ROIs, over entire image, over entire experiment



FRET — analysis of image sets, calculation and

- Subtract bleed-through via PFRET unmixing algorithm of Periasamy
- Estimate pixel-by-pixel FRET efficiencies and donor-acceptor separation

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