

3D Constructor®

3D Reconstruction, Visualization, and Measurement Plug-In for Image-Pro® Plus

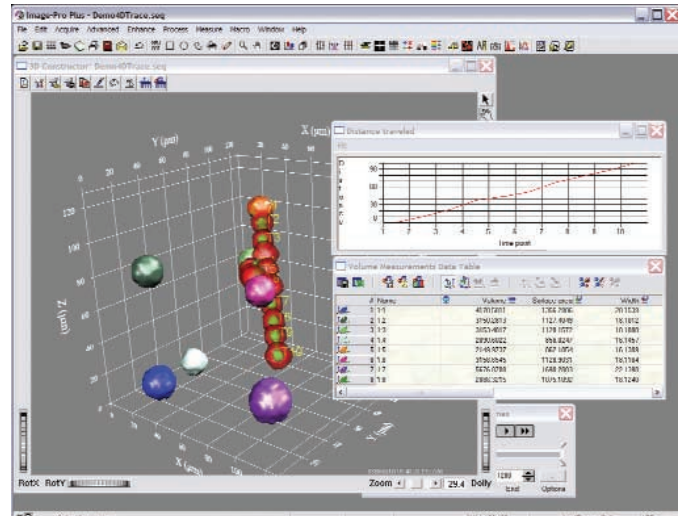
Overview

3D Constructor is for scientific researchers who wish to explore three-dimensional relationships within and among objects. The latest version adds interactive and automatic measurement capabilities in three and four dimensions. Image Z-stacks can be reconstructed and measured within the popular Image-Pro Plus environment.

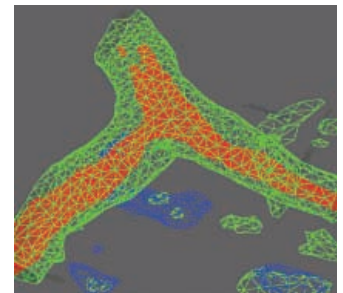
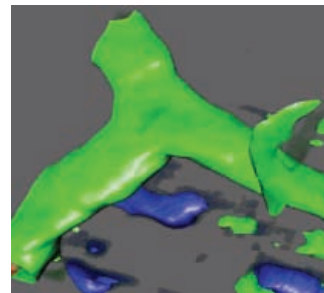
Unlike any other set of image analysis tools, the plug-in architecture and modules of Image-Pro Plus offer a smooth and seamless workflow for image capture, 2D processing, 2D analysis, deconvolution, and 3D/4D visualization and measurement. Z-stacks may be collected using Media Cybernetics' Scope-Pro® and Advanced Fluorescence Acquisition (AFA®) plug-in modules for Image-Pro Plus, or loaded from stored files (including all major confocal formats).

Features

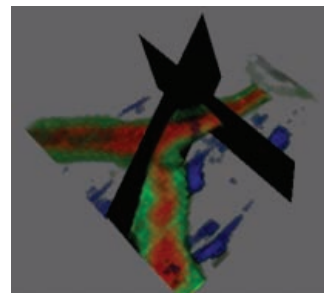
- Seamless integration with Image-Pro Plus.
- Full 32-bit application available for Microsoft® Windows 2000 and XP Professional.
- Multi-language menu selections (upon request).
- Fully automated 3D solution for light microscopy when combined with Image-Pro Plus' Scope-Pro and AFA modules.
- Reads most major file formats including:
 - AutoQuant
 - TIFF-series
 - Image-Pro Sequence
 - Olympus FluoView Confocal
 - Bio-Rad Confocal
 - Carl Zeiss Confocal
 - Leica Confocal
 - Nikon Confocal
- Automated reading of the image parameters for visualization (wavelength, magnification, immersion refractive index, and X,Y,Z spacing). Alternatively these values can be entered manually.



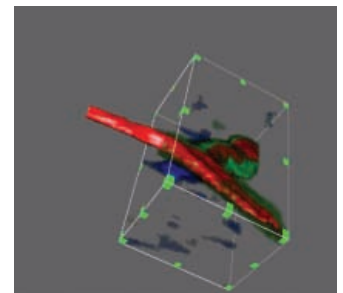
Tracking of selected object in time-lapse stack series.



Solid and wireframe rendering example of blood vessel

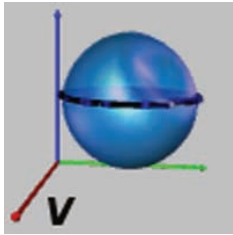


Multiple orthogonal and oblique slicing

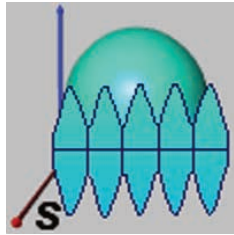


Volume of interest with iso-surface rendering

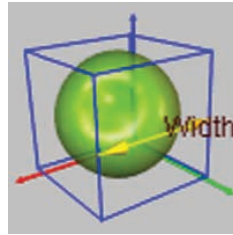
Volume Measurement Descriptions:



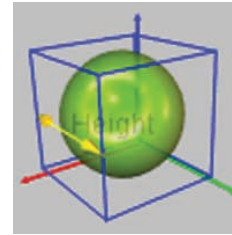
Volume - Volume of object in calibrated units



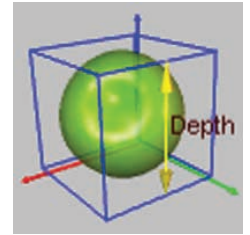
Surface Area - Surface area of object in calibrated units



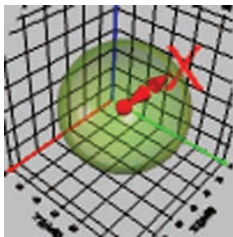
Width - Size of bounding box in X direction



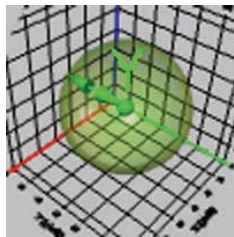
Height - Size of bounding box in Y direction



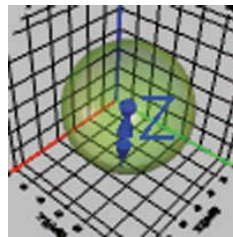
Depth - Size of bounding box in Z direction



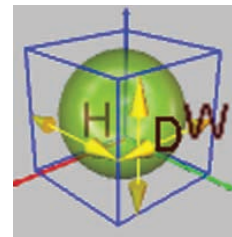
Center X - X coordinate of the center of object



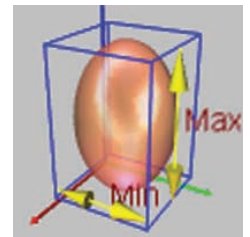
Center Y - Y coordinate of the center of object



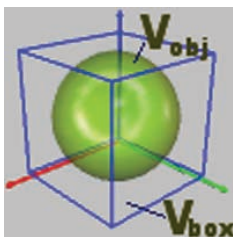
Center Z - Z coordinate of the center of object



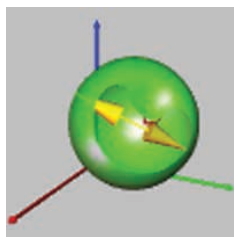
Box Volume - Volume of object's bounding box ($V = W * H * D$)



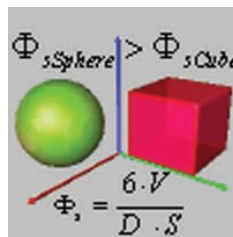
Box Ratio - Ratio between maximum and minimum size of the bounding box ($R = \text{Max} / \text{Min}$)



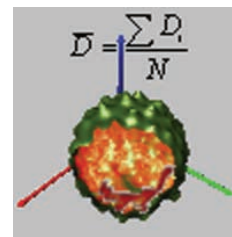
Volume Fraction - Ratio of object's volume to the box volume ($R = V_{obj} / V_{box}$)



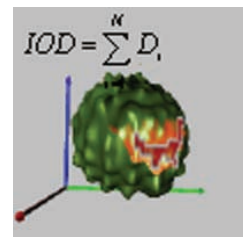
Diameter - Equivalent diameter of object



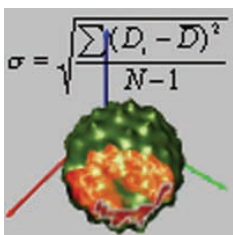
Sphericity - Sphericity of object



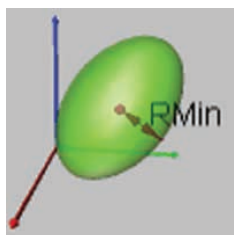
Density (mean) - Mean density of object



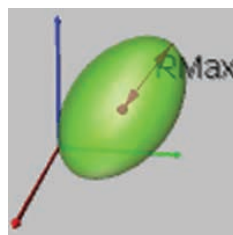
IOD - Integrated Optical Density of object



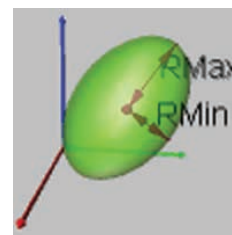
Density (st.dev.) - Standard deviation of optical density of object



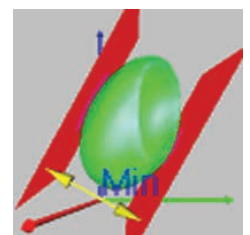
Radius (max) - Max. distance between object's centroid and surface



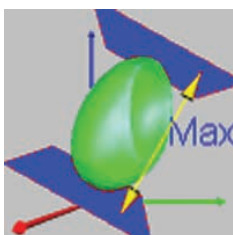
Radius (min) - Min. distance between object's centroid and surface



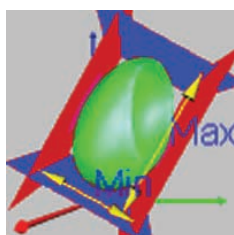
Radius Ratio - Ratio between Radius (max) and Radius (min)



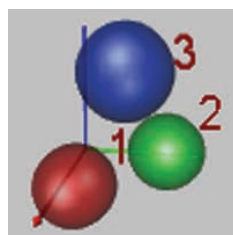
Feret (min) - Minimum distance between two parallel planes enclosing object



Feret (max) - Maximum distance between two parallel planes enclosing object



Feret Ratio - Ratio between Ferret (max) and Ferret (min)



Class - Class to which object belongs

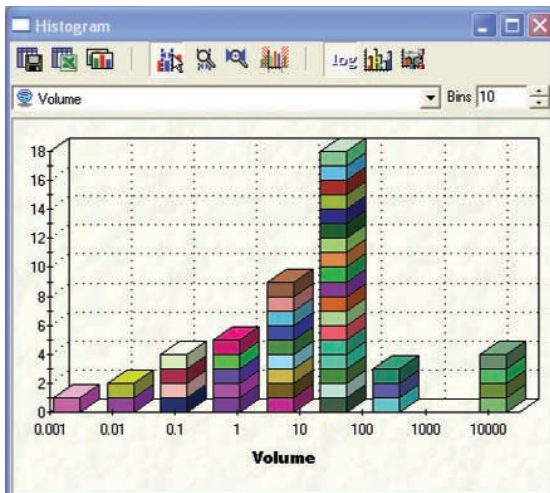
FROM IMAGES TO ANSWERS®

Data Display and Handling

- Individual object measurements
- Statistical information
- Histogram display
- Interactive object selection from histogram or data table
- Hide or view selected objects

#	Name	Volume	Surface area	Width
24	Nuclear	32070.0333	8858.9693	47.6550
3	1:3	15216.1460	13383.7163	72.2876
27	1:27	13633.0615	4587.5677	32.7611
19	1:19	11910.1079	3226.5623	27.0284
41	1:41	6171.5635	394.8495	10.8428
35	1:35	162.3872	158.8561	4.7705
26	1:26	108.9615	155.3647	3.8658
9	1:9	83.8658	106.2451	5.6945
4	1:4	83.2880	84.8734	4.8418
43	1:43	59.8344	84.7538	5.9355
2	1:2	57.3288	86.1070	6.3447
10	1:10	50.4853	78.1770	3.3189
22	1:22	46.6326	75.4863	4.7149
39	1:39	42.5326	72.6716	3.0294
33	1:33	40.1465	83.1432	3.8230
34	1:34	39.7347	63.8556	3.9125
Mean value		1552.0938	670.7935	6.2204
Standard deviat...		5597.4007	2386.8472	13.0108
Minimum		0.0000	0.0029	0.0142
Maximum		32070.0333	13383.7163	72.2876
Flange		32070.0333	13383.7134	72.2734
Sum		74500.5013	32198.0878	298.5783
Index of Min		5.0000	5.0000	5.0000
Index of Max		24.0000	3.0000	3.0000
Shown objects		48.0000	48.0000	48.0000
Total objects		48.0000	48.0000	48.0000

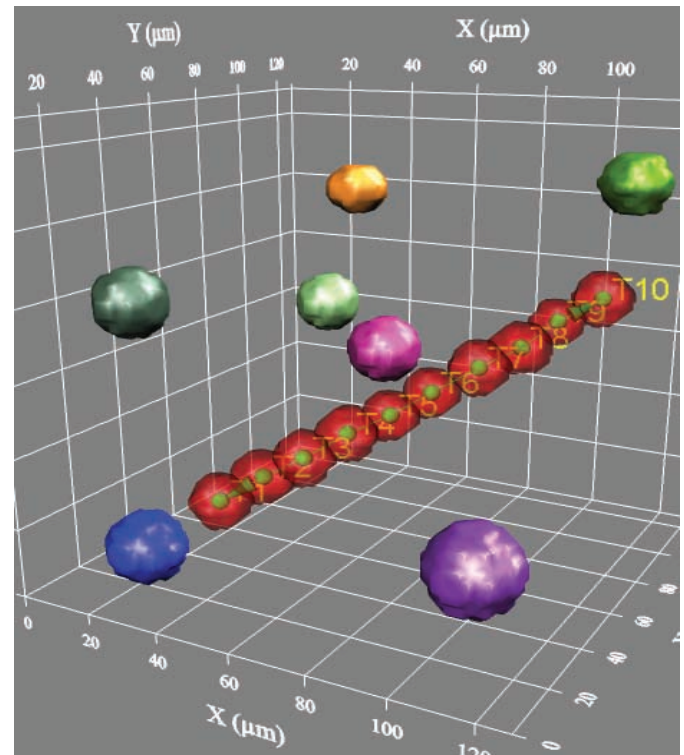
Volume measurements are collected in the volume measurements data table.



View measurements in histograms and/or export to Microsoft® Excel.

3D Constructor System Requirements

- Image-Pro Plus v4.5.1 or higher
- Pentium III or Athlon CPU, running at 800 Mhz or higher
- Microsoft Windows 2000 and XP Professional
- 512 MB of RAM (1GB or better recommended)
- Disk drive for installation, images, and virtual memory (40GB or better recommended)
- Color monitor displaying 16-bit high color (24 or 32-bit color preferred)
- OpenGL accelerated graphics card with support for texture mapping and with 64MB RAM or better (contact Media Cybernetics for information on which cards are supported)



View and measure in multiple dimensions with 3D Constructor (close-up view of time-lapse volume sequence).

**Our Worldwide Dealer Network is There to Assist You.
For a Dealer in Your Area, Call Today!**

3D Constructor
PLUG-IN
An Image-Pro® Solution

MediaCybernetics
From Images to Answers®

Media Cybernetics, Inc.
8484 Georgia Avenue, Suite 200
Silver Spring, MD 20910 USA
Phone: +1.301.495.3305
Fax: +1.301.495.5964
Email: info@mediacy.com
Web: www.mediacy.com

South America: Phone: +55.11.4427.7803
Fax: +55.11.4427.9527

Europe: Phone: +31.715.730.639
Fax: +31.715.730.640

Asia Pacific: Phone: +65.6245.4965
Fax: +65.6245.4967