

## Imaging and Bioinformatics Software

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<b>Gel Analysis Software</b>	<b>243</b>
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## Software Overview

### See Also

Imaging systems:  
pages 232–237.  
Bio-Plex Manager  
software:  
pages 258–259.  
Microplate Manager  
software:  
page 278.

Bio-Rad offers stand-alone software across a range of laboratory needs for image acquisition, image and data analysis, and data management. Software for 1-D and 2-D image analysis includes advanced tools to obtain the best image data possible. Built-in quick guides and software wizards enable you to optimize images and generate printed copies easily and quickly. Advanced software tools for pattern recognition and trend analysis utilize image and other data for optimal results. Image acquisition software runs in a Windows or Macintosh environment and has easy-to-use graphical interfaces with standard pull-down menus, toolbars, and keyboard commands. File formats and menu commands are shared across programs, allowing easy switching between applications.

For information on instrument platform-specific software, refer to the appropriate instrument section of this catalog.

### For More Information

Web: [www.bio-rad.com/imagelabsoftware](http://www.bio-rad.com/imagelabsoftware)

Request or download bulletin: 6126

### Software Application Guide

	Gel Analysis		
	Image Lab™, page 243	Quantity One®, page 244	PDQuest™, page 245
Image acquisition	•	•	—
Automated analysis	•	•	•
Automated imaging and analysis	•	—	—
1-D gel analysis	•	•	—
Colony counting	—	•	—
Dot/slot blot analysis	•	•	—
2-D gel analysis	—	—	•
Image stacking*	—	—	•
Integrated gel excision (spot cutting)	—	•	•
U.S. FDA 21 CFR Part 11 compliance tools	—	•	•

\* Image stacking is available in PDQuest Advanced software only.

### Gel Analysis Software System Requirements

Component	Image Lab	Quantity One and PDQuest
Operating system	Windows XP Pro SP3 or Windows 7 (32 or 64-bit); Mac OSX 10.6	Windows XP Pro SP3 Mac OSX 10.5
Processor	Intel 2.0 GHz; Pentium 4, dual core or better (Windows); Core 2 Duo 2.0 GHz or higher (Mac)	Intel 2.0 GHz; Pentium 4, dual core or better (Windows); Core 2 Duo 2.0 GHz or higher (Mac)
Hard disk space	Minimum >20 GB; recommend ≥100 GB	Minimum >20 GB; recommend ≥100 GB
System memory (RAM)	Minimum 1 GB; recommend ≥2 GB	Minimum 1 GB; recommend ≥2 GB
Screen resolution	1024 x 768 or higher (Windows); 128 MB video RAM 1280 x 1024 or higher (Mac); 128 MB video RAM	1024 x 768 or higher (Windows); 128 MB video RAM 1280 x 1024 or higher (Mac); 128 MB video RAM
USB Port	1 free USB 2.0 port	2 free USB 2.0 ports; 4 USB ports recommended
Quantity One HASP dongle	—	1 USB 1.0 or better or parallel port (Windows) 1 USB 1.0 or better or Mac ADB port
Optional software	Microsoft Office 2003 or 2007 (Windows) Microsoft Office 2008 or iWork (Mac)	Microsoft Office 2003 or 2007 (Windows) Microsoft Office 2008 or iWorks (Mac)
Firewire port (only required for ChemiDoc™ XRS+ system with Firewire camera)	—	1 free Firewire port (FW 400; 6 pin) or 1 full size PCI slot (Windows only) <b>Warning:</b> PCI card requires full size PCI slot

# Gel Analysis Software

## Image Lab™ Software

Order Info: Pg 246

Image Lab image acquisition and analysis software runs the Gel Doc™ EZ, Gel Doc XR+, ChemiDoc™ XRS+, and ChemiDoc MP imaging systems. After the sample is loaded, a single integrated and automated workflow captures optimized gel or blot image data, analyzes the gel or blot features, and produces a comprehensive report in mere seconds. Image Lab software includes detailed tutorials and requires no previous imaging experience to produce optimum gel and blot images.

### Automated Workflow

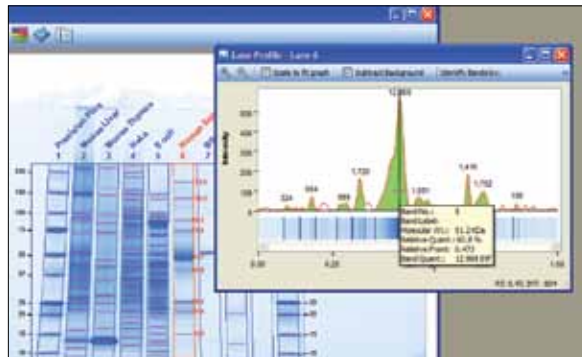
- Executes preprogrammed and user-created protocols to perform imaging experiments from image capture to analysis to printed reports with a single click of the mouse
- Simplifies and optimizes imaging and analysis while saving time
- Ensures that workflows are reproducible

### System Optimization at Setup

- Selects the optimum detection conditions for the sample stain, label, or light-emitting reaction
- Uses proprietary algorithms to calibrate the system for automatic control of focus at any zoom level and automatic correction of imaging artifacts
- Performs flat fielding corrections specifically and consistently for every application
- Generates accurate data and beautiful images

### Automated or Manual Data Analysis

- Performs all the image analysis steps automatically; can be user-modified for more precise band detection, control of background level, and choice of lane
- Updates results tables instantly when experimental parameters are changed
- Offers optional manual image analysis for adjustments by the user in every step
- Displays MW (or base pair) values and presents a quantitative comparison to evaluate sample purity and identify sample components for all bands and lanes



Band No.	Molecular Wt. (kDa)	Relative Front	Relative Quant. (%)	Exp.
1	179.0	0.096	1.5	
2	136.3	0.175	3.1	
3	84.8	0.207	2.8	
4	79.4	0.341	5.1	
5	51.2	0.473	65.8	

Data analysis and reporting.

### Customized Data Tables, Reports, and Visuals

- Generates a customized data table with all sample information organized lane by lane and band by band each time a data analysis is performed or modified
- Copies any part of a data table to popular document processing applications such as Adobe Acrobat, Microsoft Word, or Microsoft Excel
- Saves reports within customized protocols designed by the user
- Provides multiple tools for displaying, viewing, and annotating images; exports Image Lab software visuals directly into publications and presentations

### For More Information

Web: [www.bio-rad.com/imagelabsoftware](http://www.bio-rad.com/imagelabsoftware)

## See Also

Imaging instruments:  
pages 232–237.

EXQuest spot cutter:  
page 237.

Electrophoresis  
systems:  
pages 153–167,  
pages 211–217.

## Quantity One® 1-D Analysis Software

Order Info: Pg 246

Image acquisition from all Bio-Rad imaging systems is simple with Quantity One software. The software can acquire, quantitate, and analyze a variety of data, including radioactive, chemiluminescent, fluorescent, and color-stained samples acquired from densitometers, storage phosphor imagers, fluorescence imagers, and gel documentation systems. It allows automatic configuration of these imaging systems with appropriate filters, lasers, LEDs, and other illumination sources. Its flexible tools allow automated analysis of 1-D electrophoretic gels, dot blots, slot blots, and colony counts for fast, high-quality results.

**Flexible Lane and Band Analysis**

- Automatic lane and band detection
- Rapid MW determination with choice of multiple regression models and preset standards
- Band and lane matching analysis with comparative dendrogram creation
- Background subtraction correction of gradient gels
- Purity analysis

**Quick and Easy Quantitation**

- Accurate concentration analysis using sophisticated volume tools (volume box, volume circle, volume contour, or freehand drawing)
- Local background subtraction for individual bands or global background for the entire gel or blot

**Reproducible**

- Save and recall acquisition settings for repeated use
- Use the same imaging conditions for similar samples

**Automation Manager**

The Automation Manager tool allows templates for the following functions to be saved and run automatically:

- Recall of lane and sample layouts
- MW determination
- Volume overlays
- Text and line overlays

**Integration with the EXQuest™ Spot Cutter**

- Easy-to-use point-and-click spot cutting of specified bands or entire lanes from 1-D gels
- Increased accuracy and reproducibility by integrating Quantity One software with the EXQuest spot cutter to cut 1-D gels prior to mass spectrometric identification



Merge and view up to three images in different color channels.

**Other Functionality**

- Colony counting that discriminates colonies and plaques
- Array tools to analyze and quantitate dot blots, slot blots, and medium-density arrays
- Annotation tools to add text and lines
- Tools for compliance with U.S. FDA 21 CFR Part 11 regulations
- ReadyAgarose™ precast gel wizard for simplified sample tracking
- Lane matching to compare the similarity of samples using the phylogenetic tree, similarity matrix, or band type report to determine absence or presence of bands

**Quantity One Basic Software**

Many of the features described are available in Quantity One Basic software. Images can be acquired and analyzed, data shared among colleagues, and images annotated and submitted for journal publication with this free software, which includes the basic functionality. Quantity One Basic software is available without a license or password restrictions and can be loaded on an unlimited number of computers.

**For More Information**

Web: [www.bio-rad.com/quantityone](http://www.bio-rad.com/quantityone)  
Request or download bulletin: 3002

**PDQuest™ 2-D Analysis Software, Version 8.0**

Order Info: Pg 246

**See Also**

Imaging instruments:  
pages 232–237.  
EXQuest spot cutter:  
page 237.

PDQuest software offers comprehensive and flexible 2-D gel electrophoretic analysis. Choose PDQuest Basic software for simple 2-D gel analysis or PDQuest Advanced software for comprehensive functionality used in 2-D gel-based expression proteomics studies. Whether you choose the basic or advanced version, the sophisticated analysis tools reveal subtle differences among 2-D gels. Powerful auto-matching algorithms quickly and accurately match gels with little or no manual intervention.

**Ease of Use**

- User-friendly, application-directed user interface
- Quick guides and wizards to simplify workflow through the major applications of the software, from image acquisition to output of analyzed data and spot cutting
- Onscreen, context-sensitive help
- Context-sensitive right-click menus for quick access to common commands
- True multiplatform files for PC and Macintosh
- TIFF file import; TIFF and JPEG file export

**Image Optimization and Visualization**

- Adjustment of brightness, contrast, and image filtering
- Full incremental image rotation
- Color palette for realistic color representation
- Multichannel merging of up to 3 images in independent color channels — allows convenient viewing of merged data
- Viewing function for 3-D modeling of any user-defined area of the gel (gel analysis software)

**Advanced Data Analysis**

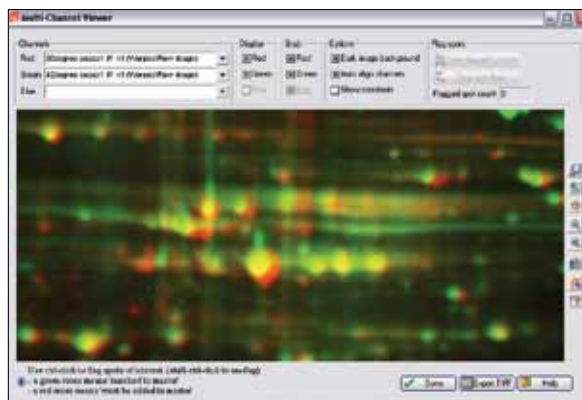
- Wide variety of statistical tools
- Comparative analysis
- Biological relationships models
- Comprehensive reports

**Automation**

- Repeatable analysis for samples of similar types
- Recallable templates
- Batch processing of multiple experiments

**Information Repository**

- Flexible annotation features
- Any type of characterizing data can be linked to each spot on a master gel image
- Easy to view and share information associated with identified proteins



Experiment wizards and image warping enable easy identification of differentially expressed proteins from 2-D gels.

**Data Security**

- Compliance with U.S. FDA 21 CFR Part 11 regulations
- Options for network licenses

**Integration with the ExQuest™ Spot Cutter**

- Seamless integration of 2-D analysis with robotic control of spot cutting
- Automated excision of spots of interest identified by 2-D analysis and statistical tools
- Easy to use point-and-click spot cutting of specified spots on 2-D gels
- Spot cutting configurations for a high degree of accuracy, high throughput, and flexibility in protein identification experiments

**For More Information**

Web: [www.bio-rad.com/pdquest](http://www.bio-rad.com/pdquest)  
Request or download bulletin: 3121

## Gel Analysis Software

Catalog #	Description	
<b>Image Lab Software</b>		<b>Pg 243</b>
170-9690	Image Lab Software, version 4.0	
<b>Quantity One 1-D Analysis Software</b>		<b>Pg 244</b>
170-9600	Quantity One 1-D Analysis Software, PC or Mac	
170-9601	Quantity One 1-User Network License, PC or Mac	
170-9602	Quantity One 2-User Network License, PC or Mac	
170-9603	Quantity One 3-User Network License, PC or Mac	
170-9604	Quantity One 4-User Network License, PC or Mac	
170-9605	Quantity One 5-User Network License, PC or Mac	
170-9606	Quantity One 10-User Network License, PC or Mac	
170-9607	Quantity One 20-User Network License, PC or Mac	
170-9608	Quantity One Add 1 User to Network License	
170-9610	Quantity One Version Upgrade, PC or Mac	
170-9612	Quantity One User Guide	
170-9615	Quantity One CFR Module	
<b>PDQuest 2-D Analysis Software, Version 8.0</b>		<b>Pg 245</b>
170-9630	PDQuest Advanced 2-D Analysis Software	
170-9631	PDQuest Advanced 1-User Network License	
170-9632	PDQuest Advanced 2-User Network License	
170-9633	PDQuest Advanced 3-User Network License	
170-9634	PDQuest Advanced 4-User Network License	
170-9635	PDQuest Advanced 5-User Network License	
170-9636	PDQuest Advanced 10-User Network License	
170-9640	PDQuest Basic to Advanced Software Version Upgrade	
170-9642	PDQuest User Guide	
170-9645	PDQuest Advanced CFR Module	
170-9620	PDQuest Basic 2-D Analysis Software	
170-9660	PDQuest Basic Software Version Upgrade, 7.x to 8.0	
170-9670	PDQuest Advanced Software Version Upgrade, 7.x to 8.0	