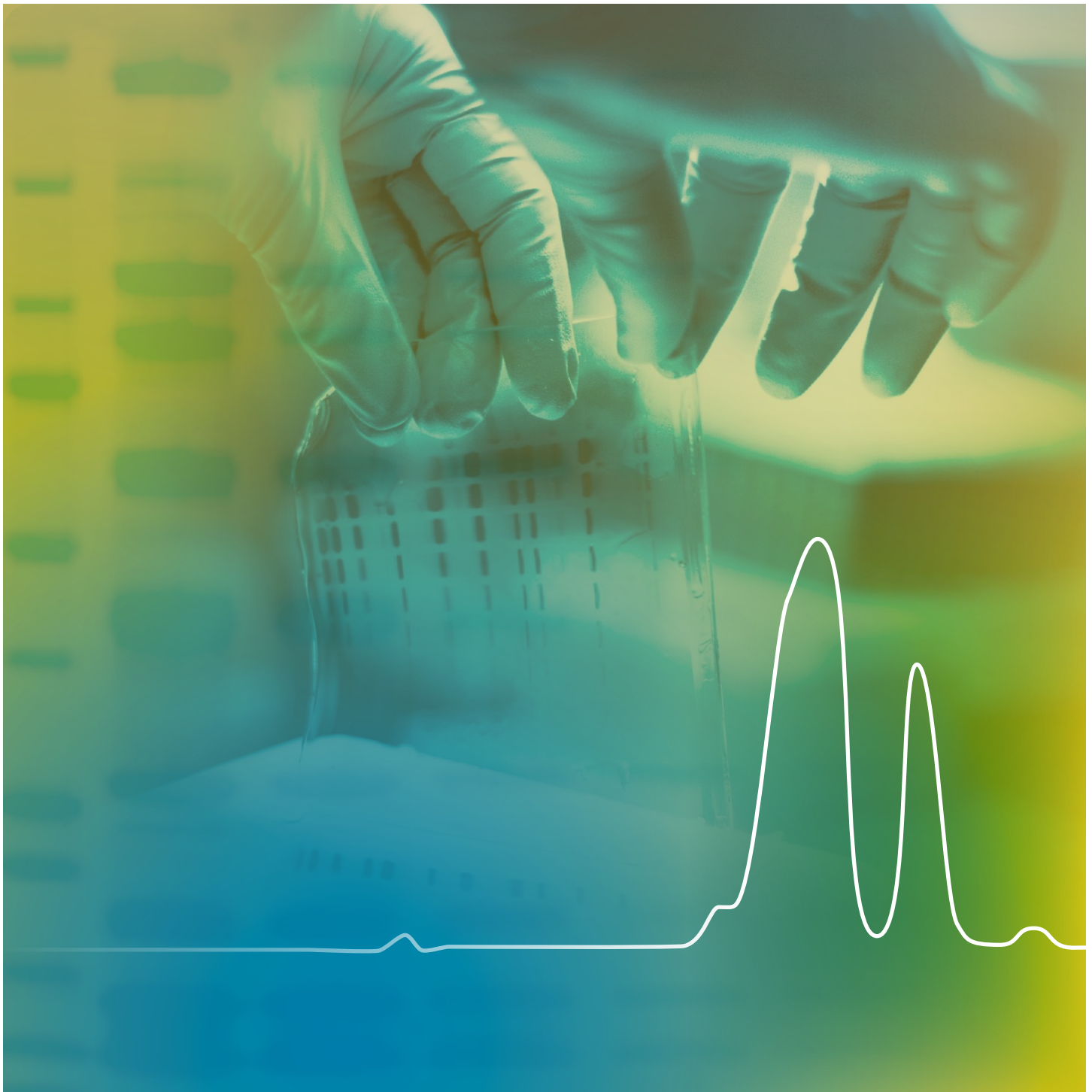


# Biologics Analysis Workflow

Integrated Protein Electrophoresis Solutions



# Biologics Analysis Workflow

Integrated Protein Electrophoresis Solutions



## Faster, easier, and more accurate analysis tools optimized for GMP labs

The Biologics Analysis Workflow is a suite of products designed and validated to assess the purity of proteins in a GMP regulatory environment. This validated workflow provides increased electrophoresis throughput, simplified and reproducible staining, and easy data analysis.

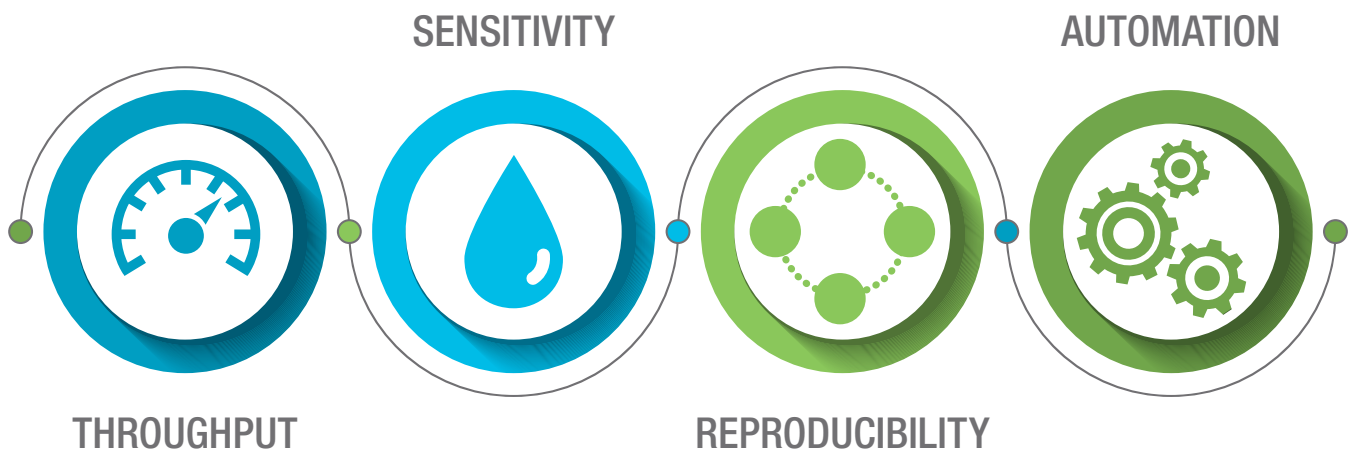
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### 1 Separate Samples

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### 2 Stain Proteins





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**3** Visualize Proteins



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**4** Analyze Results





# Faster separations using Criterion TGX Precast Gels

## Criterion TGX Precast Gels — increased throughput with fast run times and an expanded number of sample loading wells

The unique properties of TGX chemistry allow Criterion TGX Gels to be run in as little as 20 minutes. The Criterion format is mid-sized, making it possible to load up to 26 samples without decreasing the resolution required for analysis. In addition to throughput, the Criterion TGX Gels bring ease to daily lab operations with a one-year shelf life and utilization of the standard Laemmli buffer system. Furthermore, the unique design of the Criterion Cell upper buffer chamber reduces the amount of running buffer needed, saving on running costs.

### More Sample Loading Wells

Criterion TGX Gels can be used to run up to 26 samples.

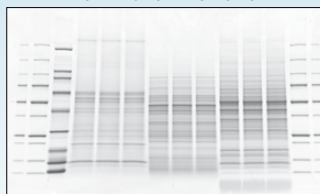


### Fast Run Times

Criterion TGX Gels can be run in as little as 20 min at 300 V without compromising performance.

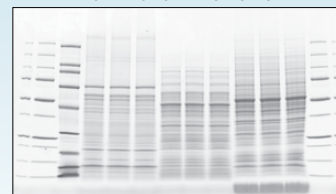
Criterion TGX 4–20% Gel

R 1 2 3 4 5 6 7 8 9 10 11 12 R



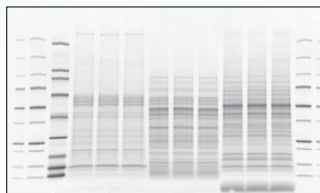
Novex 4–20% Tris-Glycine Gel

R 1 2 3 4 5 6 7 8 9 10 11 12 R



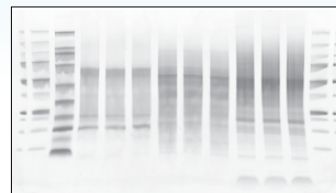
Criterion TGX 4–15% Gel

R 1 2 3 4 5 6 7 8 9 10 11 12 R



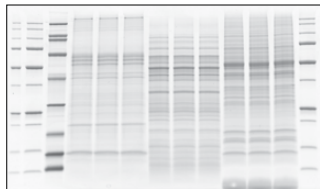
NuPAGE 4–12% Bis-Tris Gel

R 1 2 3 4 5 6 7 8 9 10 11 12 R



Any kD Criterion TGX Gel

R 1 2 3 4 5 6 7 8 9 10 11 12 R



**Comparison of Criterion TGX gels with Thermo Fisher Scientific Novex Tris-Glycine Gels and NuPAGE Bis-Tris Gels run at 300 V.** All gels were loaded as follows: outer reference lanes (R), 3  $\mu$ l Precision Plus Protein Dual Color Standards; lanes 1 and 12, 10  $\mu$ l Precision Plus Protein Dual Color Standards; lane 2, 10  $\mu$ l Unstained SDS-PAGE Broad Range Standards; lanes 3–5, 15  $\mu$ l mouse liver extract; lanes 6–8, 15  $\mu$ l *Escherichia coli* lysate; lanes 9–11, 15  $\mu$ l mouse brain extract. Following electrophoresis the gels were stained with Bio-Safe Coomassie Stain.





# Easier staining with QC Colloidal Coomassie Stain



## QC Colloidal Coomassie Stain — designed for quantitative analysis of proteins

QC Colloidal Coomassie Stain is extremely sensitive, capable of detecting nanogram levels of protein. The stain allows for flexibility in the workflow with the ability to stain in as little as 1 hour or as long as overnight. Additionally, the stain allows for very rapid destaining, in as little as 1 hour. The stain is ready to use, with no need for mixing or addition of other reagents, removing any chance of variation due to preparation errors. Furthermore, the stain utilizes ethanol in place of methanol, improving safety and ease of disposal. The colloidal chemistry enables a high protein-to-dye binding ratio, reducing background staining and improving sensitivity. QC Colloidal Coomassie Stain is ideal for quantitative analysis, as it is an end-point stain designed and optimized for use with the GS-900 Calibrated Densitometer.

### Highly Sensitive, Flexible End-Point Stain

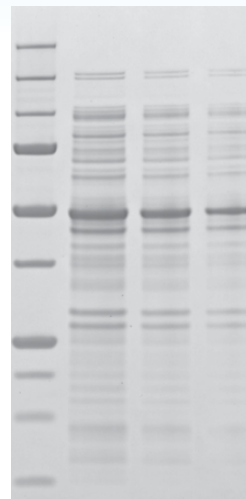
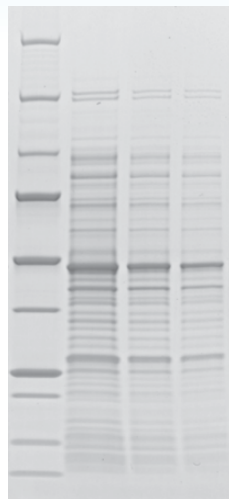
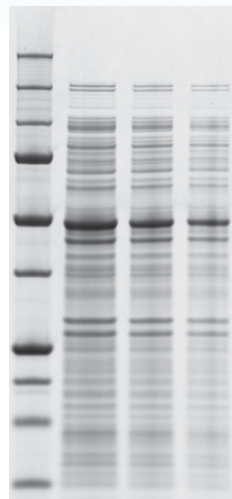
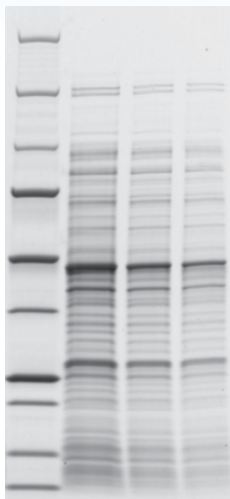
The Bio-Rad QC Colloidal Coomassie Stain combines excellent sensitivity with the flexibility to stain very quickly or for an extended amount of time while competitor products restrict staining time. The Criterion TGX Gel stained with QC Colloidal Coomassie Stain provides increased resolution with sensitivity equivalent to that of both the Thermo Fisher SimplyBlue SafeStain and Colloidal Blue Staining Kit. Additionally, the Bio-Rad QC Colloidal Coomassie Stain allows for flexibility in staining time, whereas Thermo Fisher stains are restricted to specific staining times, requiring labs to switch between stains based on the required stain time of each of their biologic products.

Criterion TGX 4–15% Gel

NuPAGE 4–12% Gel

Criterion TGX 4–15% Gel

NuPAGE 4–12% Gel



Comparison of Bio-Rad Criterion TGX 4–15% Precast Gel stained with Bio-Rad QC Colloidal Coomassie Stain (left) and Thermo Fisher NuPAGE 4–12% Precast Gel stained with Thermo Fisher Colloidal Blue Staining Kit (right). Both gels were stained overnight followed by a 3 hr destain.

Comparison of Bio-Rad TGX 4–15% Precast Gel stained with Bio-Rad QC Colloidal Coomassie Stain (left) and Thermo Fisher NuPAGE 4–12% Precast Gel stained with Thermo Fisher SimplyBlue SafeStain (right). Both gels were stained for 1 hr followed by a 1 hr destain.

# 3

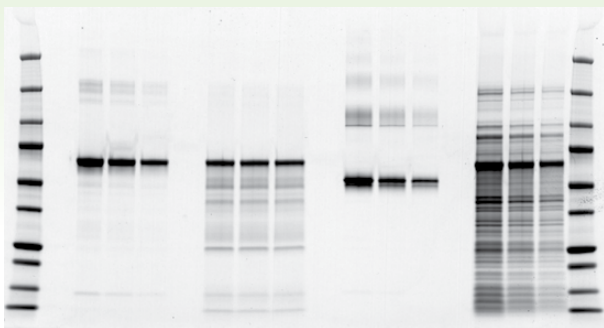
## More reproducible visualization using the GS-900 Densitometer



### GS-900 Calibrated Densitometer — reproducible visualization of proteins across a wide dynamic range

The GS-900 Calibrated Densitometer was designed with a focus on accuracy and reproducibility. To ensure the accuracy of each scan, the GS-900 Calibrated Densitometer contains an internal optical density tablet, which is scanned and used for calibration before each run. For additional assurance, the calibration of the GS-900 Densitometer can be validated using the GS-900 Calibrated Densitometer Installation and Operation Qualification (IQ/OQ) Kit. This kit utilizes a NIST-traceable external target to confirm the accuracy of the internal target, guaranteeing accurate and reproducible results. With red-, green-, and blue-CCD technology, the GS-900 Densitometer allows imaging and quantitation of colorimetric blots, film, and gels treated with a variety of stains. Additionally, the wide dynamic range permits quantitation of proteins from 0–3.4 OD, ensuring the detection of both highly abundant and rare proteins.

#### Protein Visualization



#### Qualification (IQ/OQ) Kit



#### Specifications

|                  |  |
|------------------|--|
| Light source     | LED  |
| Wavelength       | 400–750 nm                                   |
| Operating modes  | Transmissive and reflective                  |
| Absorbance range | 0–3.4 OD transmissive<br>0–2.7 OD reflective |
| Scanning area    | 29 x 33 cm                                   |
| Dimensions       | 62.7 x 37.6 x 18.5 cm                        |
| Weight           | 16.1 kg                                      |
| Pixel density    | 700 dpi                                      |
| Resolution       | 36.3 $\mu$ m                                 |

# 4

# Effortless analysis with Image Lab Software



## Intuitive Automated Analysis

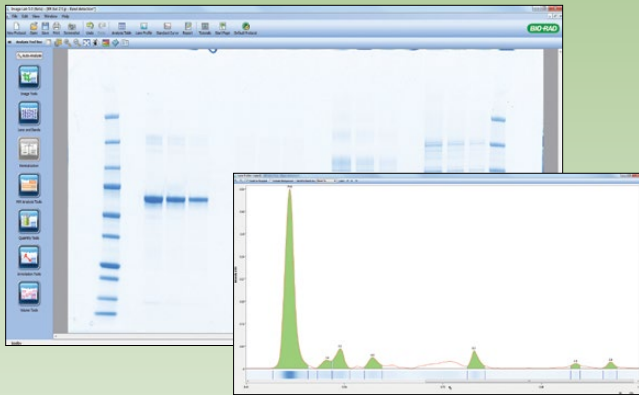
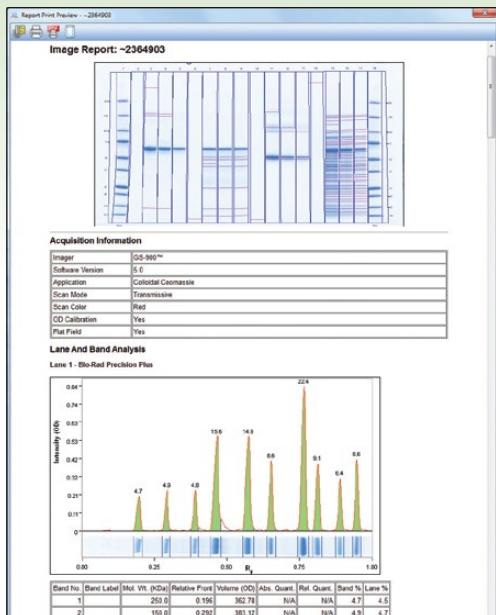


Image Lab Software — U.S. FDA 21 CFR Part 11 compliant, effortless analysis of samples with intuitive, user-friendly interface

Analysis of gels is greatly simplified with Image Lab Software. Users can automate their analyses, saving time and ensuring analyses are consistent from run to run. Image Lab Software does not require previous imaging experience in order to produce optimal gel and blot images. When flexibility is required, users can simply modify analysis settings to match SOPs and fine-tune other settings such as band detection and background level. Additionally, with the optional 21 CFR Part 11 module, Image Lab Software contains powerful user account controls and data security features to help you meet regulatory requirements.

## Easily Customizable Reports



## Ordering Information

### Criterion TGX Midi Precast Protein Gels\*

| Description           | 12+2-Well**<br>45 µl | 18-Well<br>30 µl | 26-Well<br>15 µl | Prep+2-Well<br>800 µl | IPG+1-Well<br>11 cm IPG Strip |
|-----------------------|----------------------|------------------|------------------|-----------------------|-------------------------------|
| 7.5% Resolving Gel    | 5671023              | 5671024          | 5671025          | —                     | —                             |
| 10% Resolving Gel     | 5671033              | 5671034          | 5671035          | —                     | —                             |
| 12% Resolving Gel     | 5671043              | 5671044          | 5671045          | —                     | —                             |
| 4–15% Linear Gradient | 5671083              | 5671084          | 5671085          | 5671082               | 5671081                       |
| 4–20% Linear Gradient | 5671093              | 5671094          | 5671095          | 5671092               | 5671091                       |
| 8–16% Linear Gradient | 5671103              | 5671104          | 5671105          | 5671102               | 5671101                       |
| Any kD Gel            | 5671123              | 5671124          | 5671125          | 5671122               | 5671121                       |

\* Criterion TGX Gels are sold as single gels.

\*\* Reference well accommodates 15 µl of markers/standards.

Catalog # Description

#### Protein Standards

- 1610393 **Precision Plus Protein All Blue Prestained Protein Standards, Value Pack**, 2.5 ml, 250 applications
- 1610373 **Precision Plus Protein All Blue Standards**, 500 µl, 50 applications
- 1610396 **Precision Plus Protein Unstained Protein Standards**, 5 ml, 500 applications
- 1610363 **Precision Plus Protein Unstained Standards**, 1 ml, 100 applications

#### Buffers

- 1610732 **10x Tris/Glycine/SDS Buffer**, 1 L
- 1610747 **4x Laemmli Sample Buffer**, 10 ml
- 1610737 **2x Laemmli Sample Buffer**, 30 ml
- 1610710 **2-Mercaptoethanol**, 25 ml

#### Stain

- 1610803 **QC Colloidal Coomassie Stain**, 1 L, ready-to-use, nonhazardous colloidal Coomassie G-250 stain for protein polyacrylamide gels

#### Criterion Cell and Systems

- 1656001 **Criterion Cell**, vertical midi-format electrophoresis cell, includes buffer tank, lid with power cables, 3 sample loading guides (12+2-well, 18-well, 26-well)
- 1656019 **Criterion Cell and PowerPac Basic Power Supply**, 100–120/220–240 V, includes 1656001 and 1645050

#### Instrument

- 1707991 **GS-900 Calibrated Densitometry System**, PC-compatible calibrated densitometer, cables, Image Lab Software, optional FDA 21 CFR Part 11 and Installation Qualification/Operational Qualification Module

#### Regulatory Packages

- 1707993 **GS-900 Calibrated Densitometer Regulatory Tools Package**, pkg of 1, set of protocols for validating calibration of the GS-900 Calibrated Densitometer, NIST-traceable external step tablet, Image Lab Software, Security Edition with FDA 21 CFR Part 11 Module
- 17006130 **Image Lab Software, Security Edition**, 1 license, FDA 21 CFR Part 11 module for Image Lab Software, use with GS-900 Calibrated Densitometer and all models of Bio-Rad GelDoc and ChemiDoc Imaging Systems
- 17006171 **Image Lab Software, Security Edition**, 5 licenses, FDA 21 CFR Part 11 module for Image Lab Software, use with GS-900 Calibrated Densitometer and all models of Bio-Rad GelDoc and ChemiDoc Imaging Systems
- 17006172 **Image Lab Software, Security Edition**, 10 licenses, FDA 21 CFR Part 11 module for Image Lab Software, use with GS-900 Calibrated Densitometer and all models of Bio-Rad GelDoc and ChemiDoc Imaging Systems
- 1707994 **GS-900 Calibrated Densitometry IQ/OQ Kit**, set of protocols for Installation Qualification/Operational Qualification and NIST-traceable external step tablet for the GS-900 Calibrated Densitometer



Visit [bio-rad.com/BiologicsAnalysis](http://bio-rad.com/BiologicsAnalysis) for more information.

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