



WESTERN DETECTION

Stunningly easy western blot and gel imaging



Optimized gel imaging and analysis with iBright Tray Adapters for E-Gel Agarose Gels

Introduction

DNA electrophoresis can be performed with Invitrogen™ E-Gel™ precast agarose gels in less than 30 minutes, and no gel preparation or liquid buffers are required. E-Gel precast agarose gels work for a wide variety of applications, and we offer a broad selection with different well configurations. Invitrogen™ iBright™

Tray Adapters for E-Gel™ Agarose Gels are designed for imaging and analyzing Invitrogen™ E-Gel™ 11-well, 48-well, 96-well, and EX Double Comb 22-well gels on Invitrogen™ iBright™ Imaging Systems (Figure 1).



Figure 1. (A) iBright Tray Adapter for 11/22-well E-Gel precast gels and (B) iBright Tray Adapter for 48/96-well E-Gel precast gels.

Components of iBright Tray Adapters

iBright Tray Adapters are two-component accessories (Figure 2). The bottom component centers the E-Gel cassette over the iBright transilluminator. The window in the bottom component allows light from the transilluminator to pass through the gel and enables precise and consistent zooming. The top component of the tray adapter covers the label on the E-Gel cassette, which may also include a barcode for identification with a barcode reader. If the label and barcode are not covered, they can emit fluorescence that will interfere with the Smart Exposure™ auto-exposure algorithm of the iBright Imaging Systems (Figure 3).



Figure 2. The iBright Tray Adapter for 48/96-well E-Gel agarose gels on the iBright turntable.

The top component of the tray adapter (1) prevents fluorescence from the E-Gel cassette label and barcode (2) from reaching the camera detector. The bottom component of the tray adapter (3) centers the E-Gel cassette on the turntable (4). Light emitted by the green LED transilluminator (5) beneath the turntable shines through the open window in the bottom component of the tray adapter.

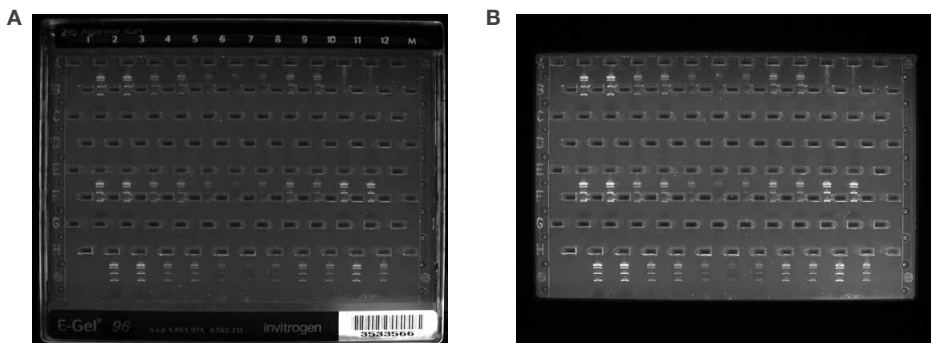


Figure 3. Imaging with the iBright Tray Adapter for 48/96-well E-Gel agarose gels helps prevent fluorescence emitted by the cassette barcode and label from interfering with the Smart Exposure auto-exposure algorithm. The Invitrogen™ E-Gel™ 96 High Range DNA Marker was serially diluted (1:1), and 10 μ L of each dilution was loaded into wells of a 2% E-Gel 96-well agarose gel and electrophoresed. The gel was imaged (A) without the iBright Tray Adapter and (B) with the iBright Tray Adapter. When a gel is imaged without an adapter, the label and barcode on the E-Gel cassette emits intense fluorescence that interferes with the Smart Exposure auto-exposure algorithm and leads to underexposure of the nucleic acid bands. When the label and barcode is covered by an adapter, the Smart Exposure algorithm calculates the appropriate exposure time for optimal image capture.

Image deconvolution and band analysis

A specialized deconvolution workflow has been developed for on-instrument use to simplify imaging and analysis of 96-well E-Gel agarose gels.

Note: The on-instrument workflow can only be used to deconvolute images of 96-well E-Gel agarose gels captured in **Universal** mode. The workflow is also available in the desktop and cloud-based versions of Invitrogen™ iBright™ Analysis Software. Deconvolution is most effective when the image has been zoomed and focused appropriately, and utilizing an iBright Tray Adapter will help ensure this is done for each capture.

Analysis and deconvolution workflow

1. Select **Analyze** to enter the analysis workflow (Figure 4). Adjust the analysis frame and well template to align with the gel as closely as possible. Select **Apply** to detect the bands.
2. The positions of the bands will be indicated on the screen. If initial band identification is not satisfactory, bands can be adjusted by selecting **Adjust bands** under **More options**.
3. Under **More options**, select **Deconvolution** to deconvolute the analyzed image.
4. Choose the desired deconvolution format, and reposition the lane boxes if needed. Select **Apply** to preview the deconvoluted image.
5. If the deconvoluted image is satisfactory, select **Generate report**.
6. Choose the options to include in the report, and change the name of the report if desired. Select **OK** to view the report, and select **Export** if you wish to export it for documentation purposes. The report will contain the new deconvoluted image and band analysis information.

Note: The deconvoluted image and associated data cannot be saved on the instrument. Only the original image file will be retained.

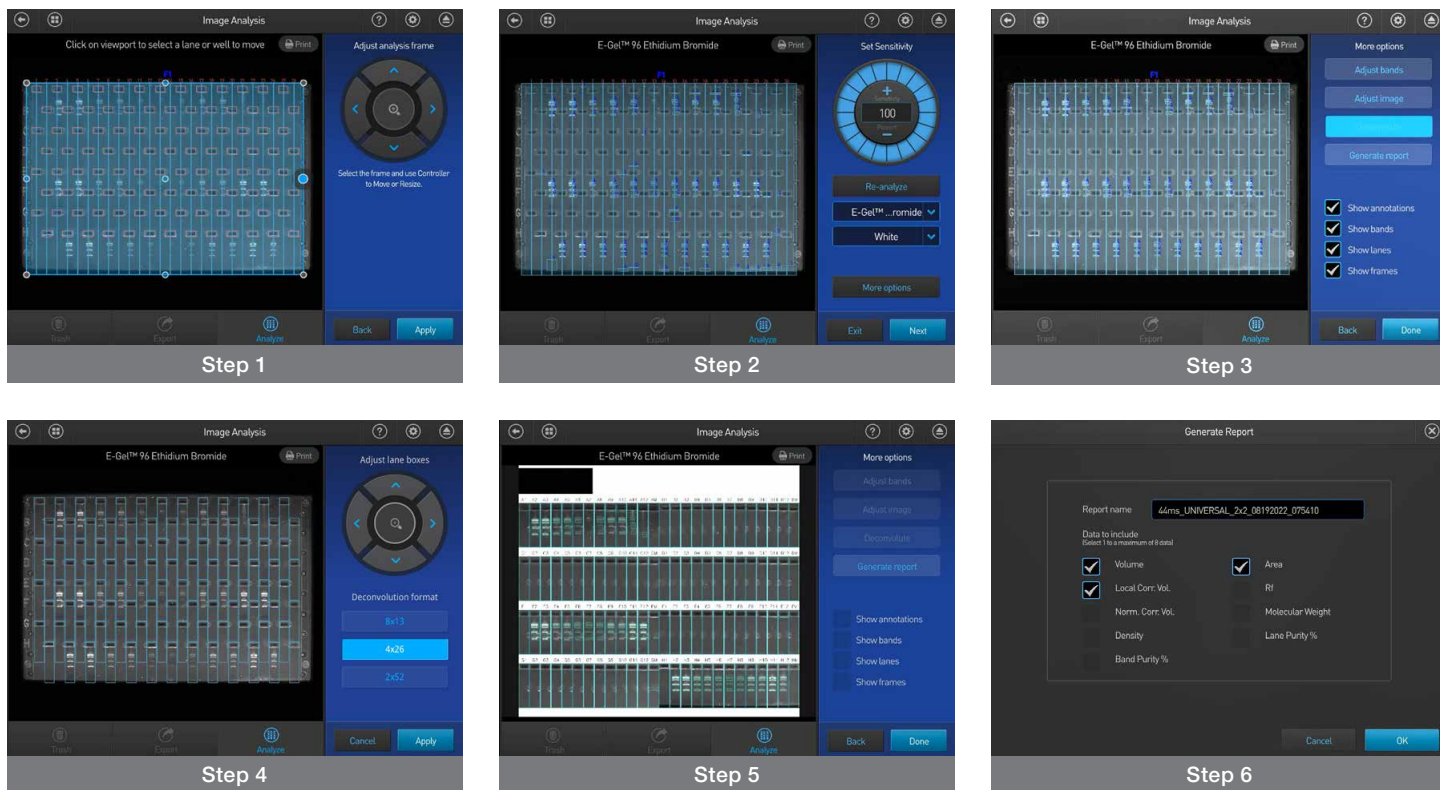


Figure 4. High-throughput 96-well E-Gel analysis and image deconvolution workflow viewed on the iBright system interface. Each image corresponds to a step in the workflow.

Conclusion

Using iBright Tray Adapters can streamline image capture and analysis of 11-, 22-, 48-, and 96-well E-Gel agarose gels. An iBright Tray Adapter allows the user to appropriately center an E-Gel agarose gel over the iBright transilluminator and prevents fluorescence emitted by the label and barcode on the E-Gel cassette from reaching the detector and interfering with the Smart Exposure auto-exposure algorithm. The deconvolution workflow can greatly simplify the interpretation and documentation of high-throughput 96-well E-Gel agarose gels by making it easier to review data from lane to lane.

Ordering information

Description	Cat. No.
iBright FL1500 Imaging System	
1 instrument, including SmartStart Orientation and 2-year warranty	A44241
1 instrument, including SmartStart Orientation, 2-year warranty, and license for iBright SAE Software for 21 CFR Part 11	A44241CFR
1 instrument, including 1-year warranty	A44115
iBright CL1500 Imaging System	
1 instrument, including SmartStart Orientation, and 2-year warranty	A44240
1 instrument, including SmartStart Orientation, 2-year warranty, and license for iBright SAE Software for 21 CFR Part 11	A44240CFR
1 instrument, including 1-year warranty	A44114
iBright CL750 Imaging System	
1 instrument, including digital SmartStart Orientation and 1-year warranty	A44116
iBright SAE Software for 21 CFR Part 11	
1 license (single license required per instrument)	A49208
iBright Tray Adapters for E-Gel Agarose Gels	
iBright Tray Adapter for E-Gel Agarose Gels, 11/22 well	A56600
iBright Tray Adapter for E-Gel Agarose Gels, 48/96 well	A56599
E-Gel Agarose Gels	
Multiple configurations available. Learn more at thermofisher.com .	

 Empower your lab—visit thermofisher.com/ibright

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