

invitrogen

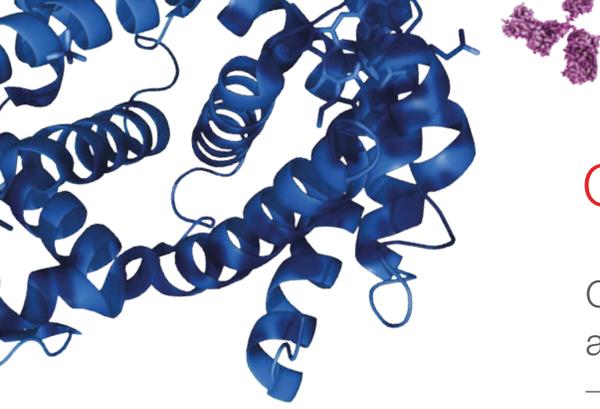
STUNNINGLY EASY WESTERN BLOT IMAGING

WESTERN DETECTION



Introducing the new iBright CL1500
and FL1500 Imaging Systems

ThermoFisher
SCIENTIFIC



Contents

Convenient, intuitive operation
and workflows 3

Powerful camera and
automated technologies 4

Essential imaging modes
and applications 5

Accelerate your work with fluorescent
multiplexed western blots 6

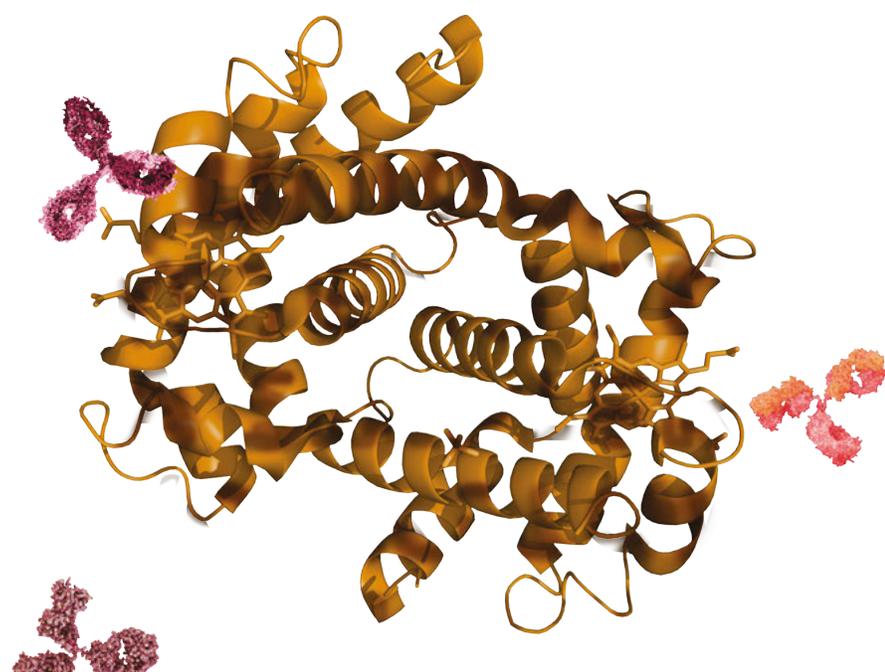
Streamlined image analysis 7

Protein normalization 8

Go green 9

Services and support you can
count on 10

Find the right model for your research 11

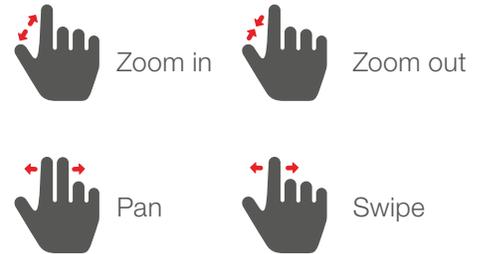


Convenient, intuitive operation and workflows

Feel at home with our touchscreen interface



The capacitive 12.1 inch LCD touchscreen on Invitrogen™ iBright™ 1500 series imaging systems responds similarly to your other high-quality touchscreen devices.



Interface layout is simple and easy to learn. Workflows are similar between imaging modes for a smooth imaging experience regardless of sample type.

Mode selection: dropdown menu to select imaging modes (chemiluminescent blot, fluorescent blot, nucleic acid gel, protein gel, and universal mode)

Help: on-board help and information

Settings: access general instrument settings, configurations, and service tools

Gallery: access previously captured images

Sign in: create a new user account or sign in to an existing account

Color option: select color or grayscale image view

Image view window: display selected image in the window for user view and interaction

Split screen: select one-window image view or two-window image view

Trash: delete current images

Drawer: open or close the sample drawer

Exposure dial: select or turn the dial to set manual exposure time or fine-tune exposure time

Capture: acquire images using exposure time set by user or instrument

Edit channels: open multiple channel options to review and edit each channel

More options: open image adjustment options

Export: edit image information and export current images to destinations of choice

Analyze: initiate analysis workflow using current images

Live view: go back to live-streaming sample view

Fluorescent blot mode view of the Invitrogen™ iBright™ FL1500 Imaging System.

Powerful camera and automated technologies

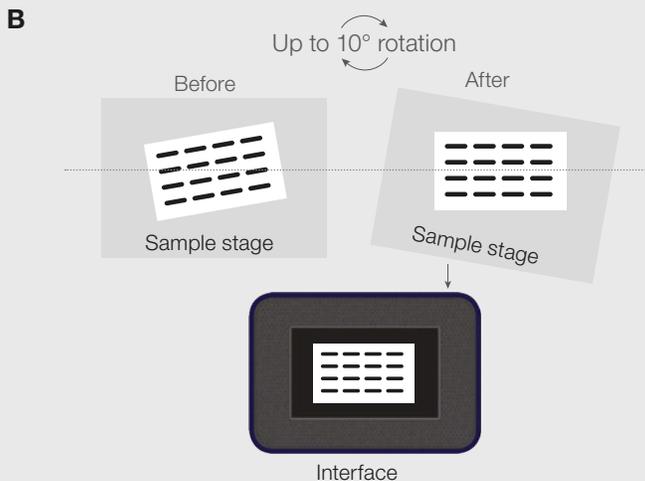
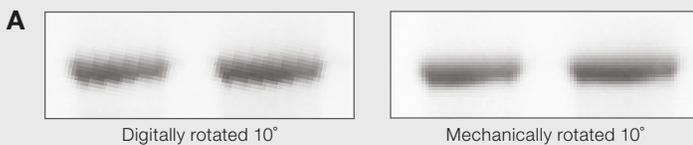
Get publication-quality data fast

Capture crisp, clear, publication-quality images with a 9.1 megapixel cooled CCD camera.

Smart Exposure™ technology rapidly determines optimal exposure time, minimizing the potential for over- or underexposed images and the need to repeat exposures to get the desired signal.

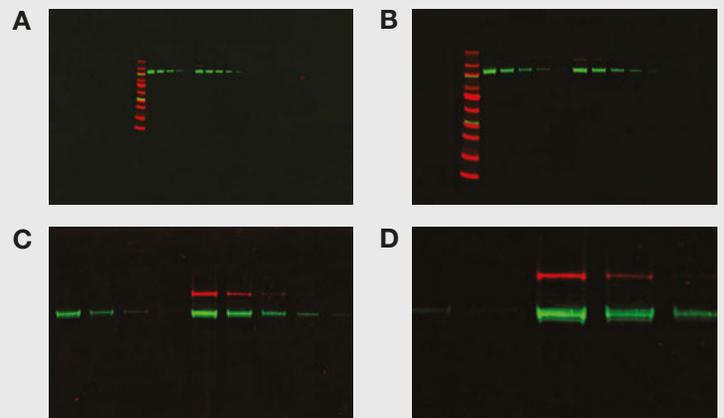


Rather than having to open the sample drawer and repeatedly reposition your sample to achieve proper alignment, iBright 1500 series imagers automatically determine the sample position and can rotate samples left or right up to 10° on a mechanically rotating sample stage. Mechanical rotation eliminates the need to digitally rotate the sample, which preserves the integrity of the data, as digital rotation can lead to data alterations.



Digital rotation vs. mechanical rotation. (A) Pixels rotate with digital rotation so bands appear jagged. With mechanical rotation, the sample itself rotates, so bands remain smooth in appearance as the pixels remain aligned. (B) Graphic depicting iBright Imaging System sample stage before and after rotation.

In addition, iBright 1500 series imagers automatically determine if the sample requires zoom in order to maximally utilize the 22.5 cm x 18.0 cm field of view. If imaging a single blot, the camera will mechanically move toward the sample up to 2X zoom (8X with additional digital zoom). Mechanical zoom maximizes sensitivity by moving the camera closer to the sample stage and thus reducing focal length. iBright 1500 series imagers automatically adjust focus for each level of zoom, producing crystal-clear images.



Zoom function. (A) Unzoomed image of a fluorescent western blot. (B) Blot at 2X zoom. (C) Blot at 4X zoom. (D) Blot at 8X zoom. (blot not repositioned during successive zooms)

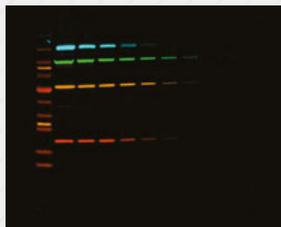
Essential imaging modes and applications

The core applications you need and the specialty applications you want

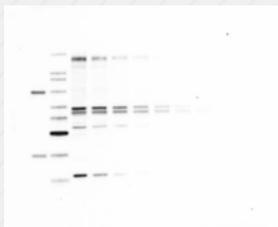
iBright 1500 series imagers offer up to five imaging modes to support your multiple applications. Efficiently and easily capture data from protein gels, nucleic acid gels, chemiluminescent western blots, fluorescent western blots, and more.

Imaging mode	What kind of signal can be captured?
Protein gel	Colorimetric staining of gels (e.g., Coomassie, silver) and membranes (e.g., Ponceau S, Thermo Scientific™ Pierce™ Reversible Protein Stain), fluorescent staining of gels (e.g., Invitrogen™ SYPRO™ Ruby stain)
Nucleic acid gel	Ethidium bromide and Invitrogen™ SYBR™ stains
Chemiluminescent blot	Chemiluminescence using all popular HRP and AP substrates (e.g., Thermo Scientific™ SuperSignal™ and Invitrogen™ WesternBreeze™ substrates)
Fluorescent blot	Fluorescence with popular RGB (visible range) and near-IR fluorophores (e.g., Invitrogen™ Alexa Fluor™ and Alexa Fluor™ Plus conjugates)
Universal	Custom mode to image samples containing multiple signals, such as chemiluminescence, fluorescence, colorimetric stains, and/or visible images; image display is similar to fluorescent blot mode and allows one to assign false color to any sample

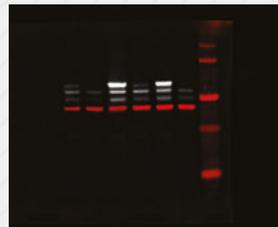
Example imaging applications



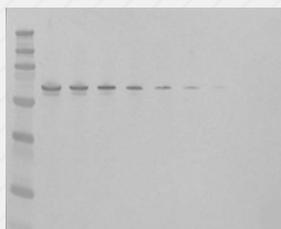
Fluorescent western blots



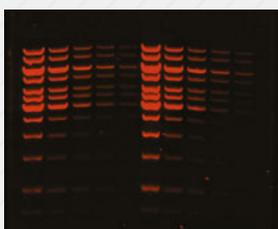
Chemiluminescent western blots



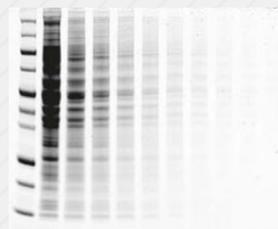
Combined fluorescent and chemiluminescent western blots



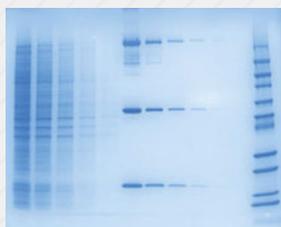
Colorimetric western blots



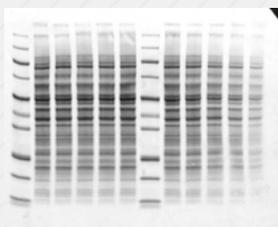
Fluorescent stained nucleic acid gels



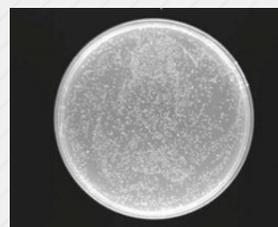
Fluorescent stained protein gels



Colorimetric stained protein gels



Colorimetric membrane stains



Colony plates

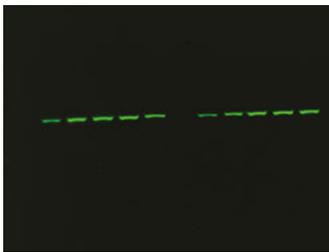
Images pictured for fluorescent stained nucleic acid gels and colorimetric stained protein gels shown in pseudocolor (false color applied). Data is captured in grayscale.

Accelerate your work with fluorescent multiplexed western blots

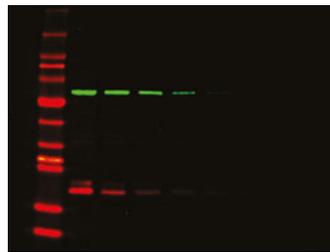
Expand the possibilities—enabling you to get more data with each experiment

Multiplexing helps make research more efficient and productive. Scientists can visualize a protein of interest simultaneously with a loading control protein, differentiate proteins of similar molecular weights, and evaluate complex biological pathways. With the five fluorescent channels of the iBright FL1500 Imaging System, researchers can multiplex with up to four fluorophores, combining fluorophores in both the visible (RGB) fluorescent range and near-infrared (near-IR) range.

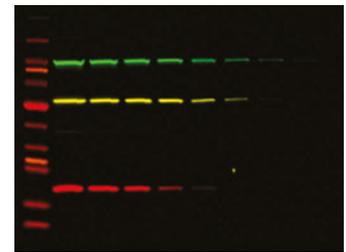
Our Smart Exposure acquisition technology further improves the capture of multiplex fluorescence western blot data, because exposure times are optimized for each fluorescence channel separately.



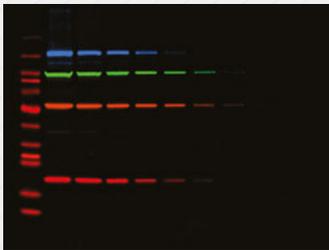
One-color fluorescence blot



Two-color fluorescence blot



Three-color fluorescence blot



Four-color fluorescence blot



Alexa Fluor Plus 488 dye—RB1 protein with GST and HA tag (134 kDa)



Alexa Fluor 546 dye—calreticulin protein (55 kDa)



Alexa Fluor Plus 680 dye—p23 protein (23 kDa)



Alexa Fluor Plus 800 dye—HSP90 protein (90 kDa)



Membrane—Invitrogen™ iBright™ prestained marker

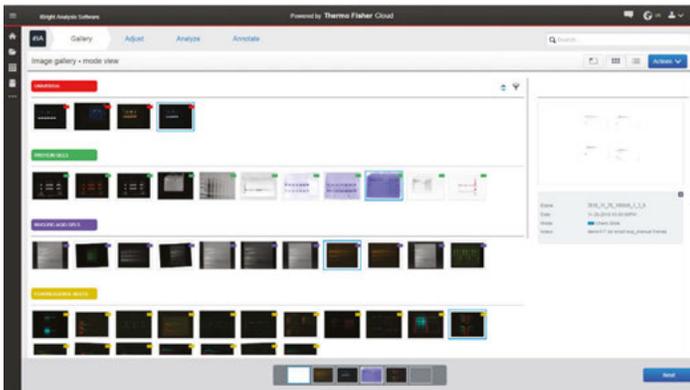
Four-color multiplexed fluorescent blot: false color composite top left, and individual channels shown in grayscale as pictured.

Streamlined image analysis

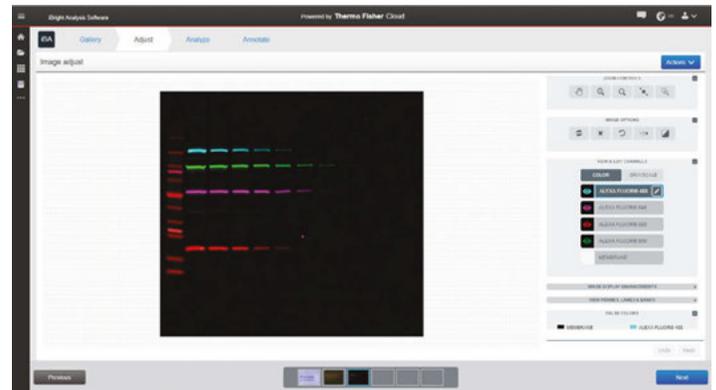
Complete the simple data capture experience with on-instrument data analysis and iBright Analysis Software

iBright imagers feature automatic, on-board data analysis for fast lane and band identification and molecular weight marker overlay, which simplifies and streamlines basic post-image data analysis. Quantitation and densitometry analysis can be performed directly on the instrument. Up to four blots or gels can be analyzed simultaneously, greatly increasing throughput.

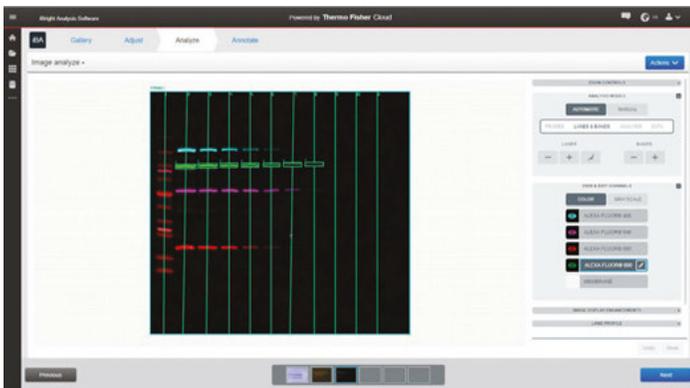
For more in-depth image adjustment and data analysis capabilities, we offer stand-alone Invitrogen™ iBright™ Analysis Software. iBright Analysis Software is available in both desktop and Connect (cloud-based) versions. iBright Analysis Software complements the on-board analysis software, and extends the functionality to include relative and absolute quantitation and normalization using housekeeping proteins as well as total lane protein. It also allows users to label their images easily using annotation features.



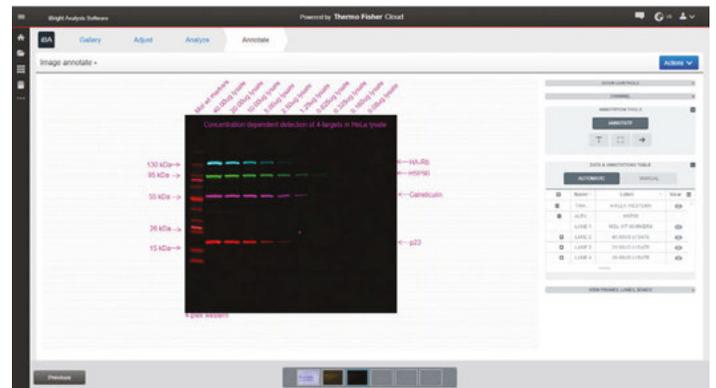
The Gallery tab contains tools to store, view, and manage your image files.



The Adjust tab contains image-editing tools.



The Analyze tab contains tools for lane and band analysis.



The Annotate tab contains tools to add notes to images.

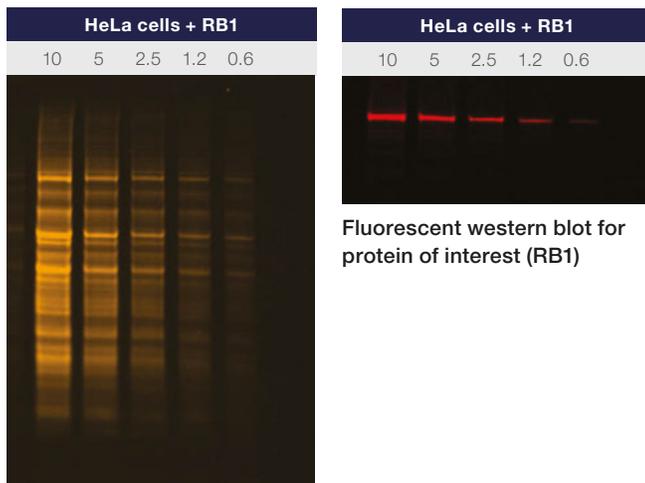
For further details about the Connect platform and data security, go to [thermofisher.com/cloudsecurity](https://www.thermofisher.com/cloudsecurity)

Protein normalization

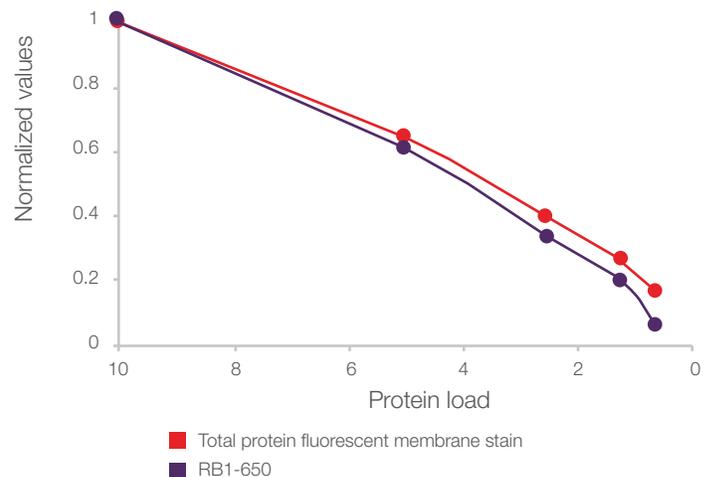
Get a better understanding of your data with our normalization workflow

Data validation and normalization is key in any experiment. Scientific experiments are often designed with different built-in controls or checkpoints to monitor or correct for the inherent variability in samples or experiments. In western blotting, variability is usually due to unequal protein sample concentration, inconsistent sample loading onto the gel, and/or transfer variation during electro-blotting. These sources of inconsistency can be monitored with visible or fluorescent gel- and membrane-based labeling methods followed by quantitation of total lane protein or

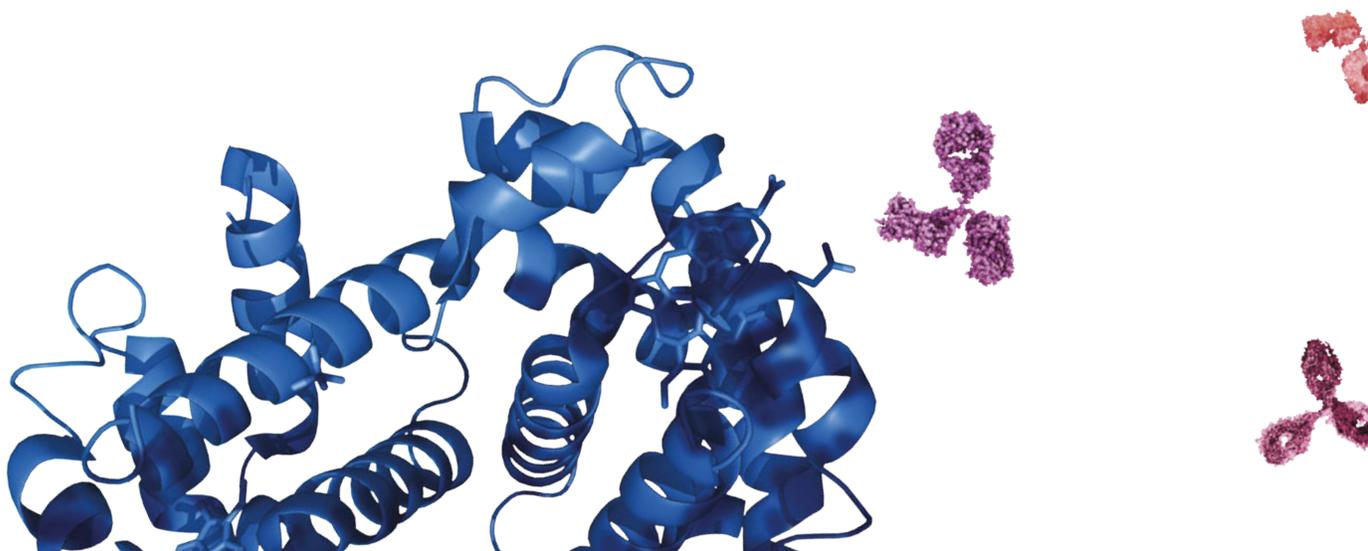
by exogenous loading controls. Sample consistency and health can also be evaluated using internal housekeeping protein controls such as GAPDH, β -tubulin, β -actin, or cyclophilin B. To support the methods best suited for your experiment, iBright imaging systems and iBright Analysis Software support a variety of automated and customizable quantitation and normalization options to monitor or mathematically compensate for experimental or sample variability.



Total protein fluorescent membrane stain



HeLa cell lysates expressing RB1 were serially diluted to various protein loads (10 μ g–0.625 μ g), separated on a gel, and transferred to a nitrocellulose membrane. The membrane was stained with a fluorescent total protein stain and the protein of interest (RB1) was probed with specific primary antibody labeled with Alexa Fluor 650 dye. Normalization was performed for total protein and RB1, and the values were plotted against protein load.



Go green

Green LEDs—our alternative to UV-based transillumination

iBright imaging systems use a transilluminator based on green LEDs, which effectively excite popular DNA dyes such as ethidium bromide and Invitrogen™ SYBR™ Green dyes.

No harmful UV rays

While UV light effectively excites many fluorescent dyes and stains, it poses a health hazard. Prolonged exposure to UV light can damage DNA samples and may compromise the integrity of samples to be used for downstream applications such as subcloning.



No mercury waste

UV transilluminator bulbs can contain mercury, a hazardous substance, and therefore require special care for handling and disposal.



Longer lifetime

LED bulbs have a substantially longer real-time life than UV bulbs, which can result in considerable cost savings over the lifetime of the instrument.



Services and support you can count on

Keep your iBright 1500 series imagers up and running with superior services and support



SmartStart Orientation enables your success

Every iBright 1500 series imaging system includes a one-day, on-site SmartStart™

Orientation to get you up and running quickly. Led by professional trainers, the orientation provides interactive education that includes application-specific lectures, hands-on experiment preparation, instrument and software setup, and basic data analysis.



Comprehensive warranty and service plans maximize system uptime

iBright 1500 series imagers come with a two-year warranty that covers all travel, labor,

and parts for repairs. Your system warranty also includes a Planned Maintenance (PM) visit during the second year. Extended-coverage service plans are available at the time of instrument purchase. Our service plans can help you maximize system uptime, reduce overall repair costs, get fast repair turnaround time from a manufacturer-trained and certified field service engineer (FSE), extend the life of your instrument, and help keep it up and running. Choose from a variety of service options that balance your budget, productivity, uptime, and regulatory requirements. Plans start with the most basic repair packages and scale to premium offerings, including advanced support and compliance services.

To build your personalized service quote, go to thermofisher.com/ibrightserviceselector

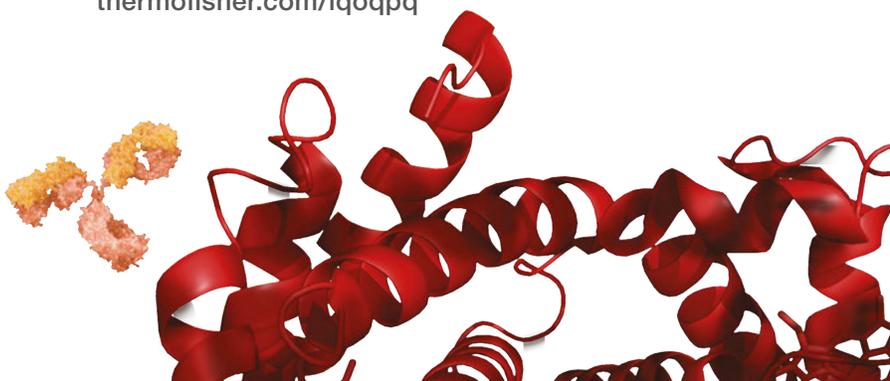


Qualification services

Instrument hardware qualifications for iBright 1500 series systems include installation qualification (IQ) and operational qualification (OQ) to document and verify that instruments are installed and operating according to manufacturer's specifications. An IQ/OQ is recommended at installation and when moving the instrument. Our qualification specialists will partner with you to deliver timely, cost-effective, and trusted qualification services that include reliable, audit-style documentation that will help ensure your instruments meet regulatory requirements.

Contact an instrument qualifications specialist at thermofisher.com/iqoqqq

Explore our services and support solutions at thermofisher.com/instrumentservices



Find the right model for your research

Compare iBright 1500 series
imaging systems



Specifications

	iBright CL1500	iBright FL1500
Camera		
Detector	Cooled 16-bit CCD, 65,535 shades of gray	
Resolution	9.1 megapixels	
Lens	Fixed, 25 mm, f/0.95	
Field of view	22.5 x 18.0 cm (W x D) (image up to 4 mini blots or gels)	
Binning modes	1x1, 2x2, 3x3, 4x4, 5x5, 6x6, 8x8	
Zoom	1–8X (1–2X mechanical + 1–4X digital)	
System interface		
Touchscreen	12.1 inch capacitive LCD display, 1,024 x 768 pixels	
Storage and connectivity		
USB	2 USB (2.0)	
Networking	Ethernet port, Connect (cloud-based) connectivity, optional Wi-Fi (adapter sold separately)	
Image file formats	G2i (proprietary), TIFF, JPG, PNG	
Report file formats	PDF and CSV	
Hard drive	256 GB SSD	
System software		
Automated features	<ul style="list-style-type: none"> • Automatic zoom • Automatic focus • Automatic exposure (Smart Exposure) • Automatic on-board image analysis 	
Stand-alone analysis applications	<ul style="list-style-type: none"> • iBright Analysis Software—desktop version (macOS™ or Windows™ operating systems) • iBright Analysis Software—Connect (cloud-based) version 	
System hardware		
Sample drawer	Automatic open/close with automatic sample rotation (up to 10°)	
Filter wheel	Motorized	
Filter sets	4 filters (2 excitation, 2 emission)	12 filters (6 excitation, 6 emission)
Illumination sources	<ul style="list-style-type: none"> • Green LED (470–550 nm) transilluminator • Epi white LED 	<ul style="list-style-type: none"> • Green LED (470–550 nm) transilluminator • Epi white LED • Epi near-IR LED
Shipping		
Dimensions	(L x W x H): 68 x 38 x 60 cm	
Weight	Approximately 50 kg (110 lbs)	
Main supported imaging applications		
Colorimetric stained protein gels	•	•
Fluorescent stained protein gels	•	•
Fluorescent stained nucleic acid gels	•	•
Colorimetric stained membranes	•	•
Chemiluminescent western blots	•	•
Colorimetric western blots	•	•
Fluorescent western blots	•	•
Qualitative* visible imaging applications		
Translucent objects (e.g., colony plates)	•	•
Opaque objects (e.g., 2D strips, TLC plates, leaf sections)	•	•
GFP expression in multiwell (e.g., 6-well) plates		•

* Applications provide a qualitative visualization of the object or confirmation of the presence of signal. Not recommended for quantitation.

Recommended products to pair with your iBright imaging system

Alexa Fluor Plus secondary antibodies

Make your low-abundance target proteins visible, spend less time optimizing, and make every one of your precious samples count. Alexa Fluor Plus secondary antibodies are designed to provide higher sensitivity and signal-to-noise in fluorescent western blotting and cell imaging.



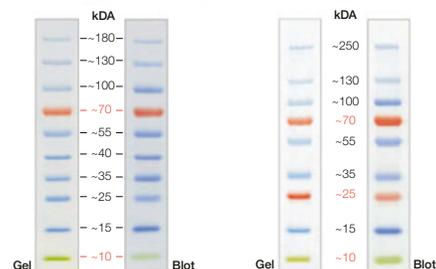
Thermo Scientific™ SuperSignal™ West Pico PLUS Chemiluminescent Substrate

Excellent sensitivity (low picogram to high femtogram), intensity, and signal duration (up to 24 hours) compared to other ECL substrates in its class. Compatible with different membranes, blocking reagents, and a wide range of antibody dilutions, making it an ideal choice for most western blotting applications.



Thermo Scientific™ PageRuler™ Prestained Protein Ladder and PageRuler™ Plus Prestained Protein Ladder

Sharp protein band resolution and consistent migration provide easy molecular weight determination. Both protein ladders are supplied in ready-to-use format to facilitate easy protein analysis during gel electrophoresis and western blotting. No need to heat, reduce, or add sample buffer prior to use.



Ordering information

Product	Description	Cat. No.
iBright FL1500 Imaging System	Instrument including 2-year warranty, SmartStart Orientation, and 1 scheduled preventative maintenance	A44241
iBright CL1500 Imaging System	Instrument including 2-year warranty, SmartStart Orientation, and 1 scheduled preventative maintenance	A44240

Request a quote or a demo today at
thermofisher.com/ibright