



GEL DOCUMENTATION AND ANALYSIS

Automated imaging



SYNGENE
A DIVISION OF THE SYNOPTICS GROUP

GEL IMAGING AND ANALYSIS

Automated imaging for all your applications

Syngene imaging systems are recognised world-wide as high quality, high performance instruments for the image capture and analysis of fluorescent gels, stain-free gels, chemiluminescent Western blots, bioluminescence and protein samples. With over 30 years of experience, Syngene systems are respected for their reliability, accuracy, intuitive software and innovative features.



Versatile

The **G:BOX** range has a number of variants, each designed to perform to the highest level for specific applications. With two different darkroom designs, each system uses a camera/lens assembly specifically chosen to produce the best possible images for the chosen application. Lighting configurations for the darkroom cover a wide range of sample types and applications ranging from fluorescence, chemiluminescence and visible light studies.



Powerful

At the heart of each **G:BOX** is the GeneSys control software which takes automation to a new level. With a **G:BOX** system the user can elect to use full automated control by simply telling the **G:BOX** the application and GeneSys does the rest. Using the extensive database, the system is able to calculate the best lighting, filter and camera configuration for any dye or substrate being used. The final result is a high quality, quantifiable image at the touch of a button.



Unique

Syngene uses an unique range of CCD cameras - exclusive to us. In addition to the high sensitivity and resolutions, Syngene cameras have exceptional levels of quantum efficiency for superb image quality.



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“The G:BOX range has a number of variants,
each designed to perform to the highest
level for specific applications”

G:BOX HIGHLIGHTS

What makes a G:BOX system special

Cameras



Each **G:BOX** uses a camera suitable for specific applications. These cameras cover a range of resolutions with the majority having Peltier cooling to reduce electronic background noise, allowing for increased exposure times to be used which are sometimes required for faint gels and blots.

Lenses



Each camera is matched with a specific lens for optimum image quality. Lenses are controlled by the GeneSys control software with most having data feedback and auto focus. Aperture control, focus and zoom position are controlled from the computer screen using GeneSys.

Filter wheel

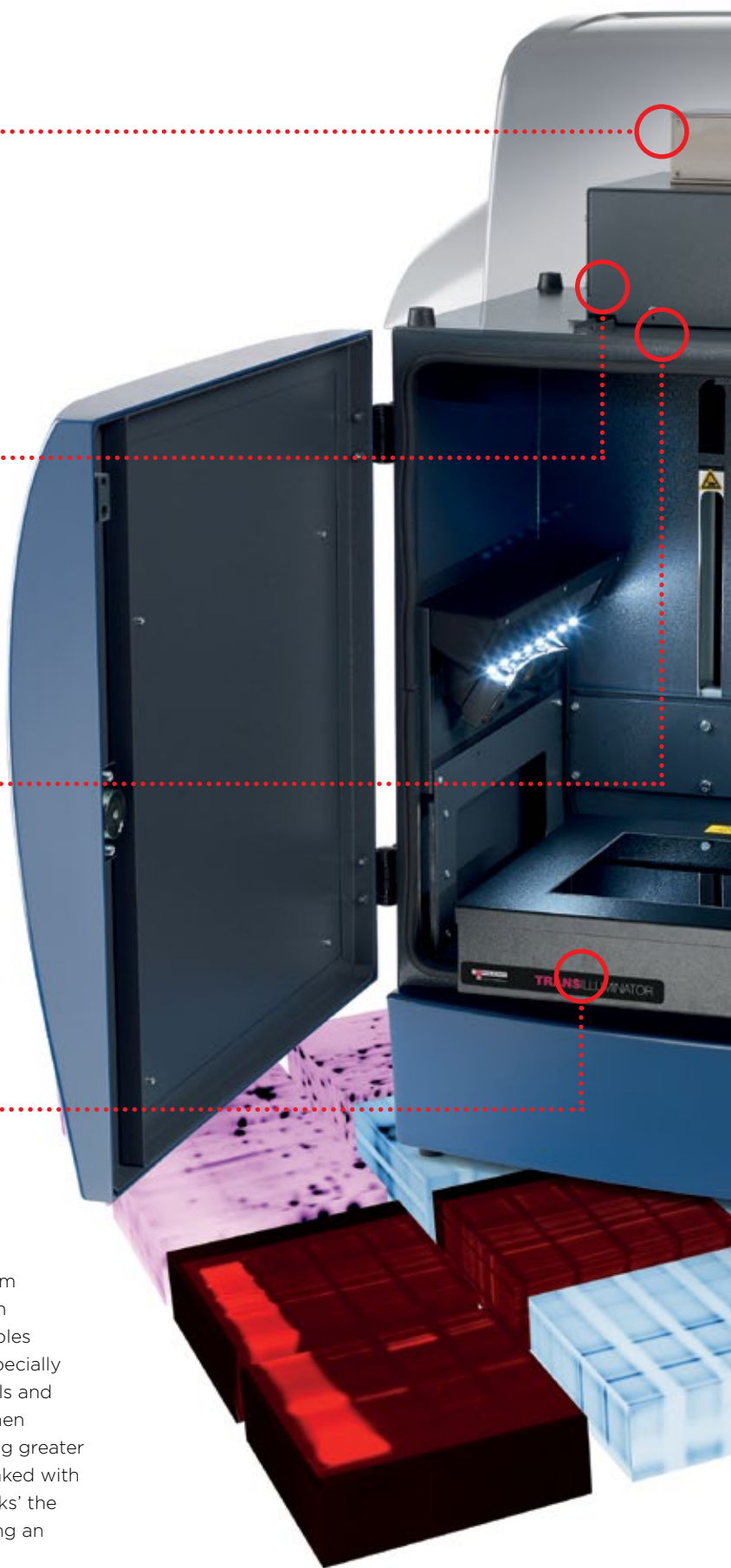


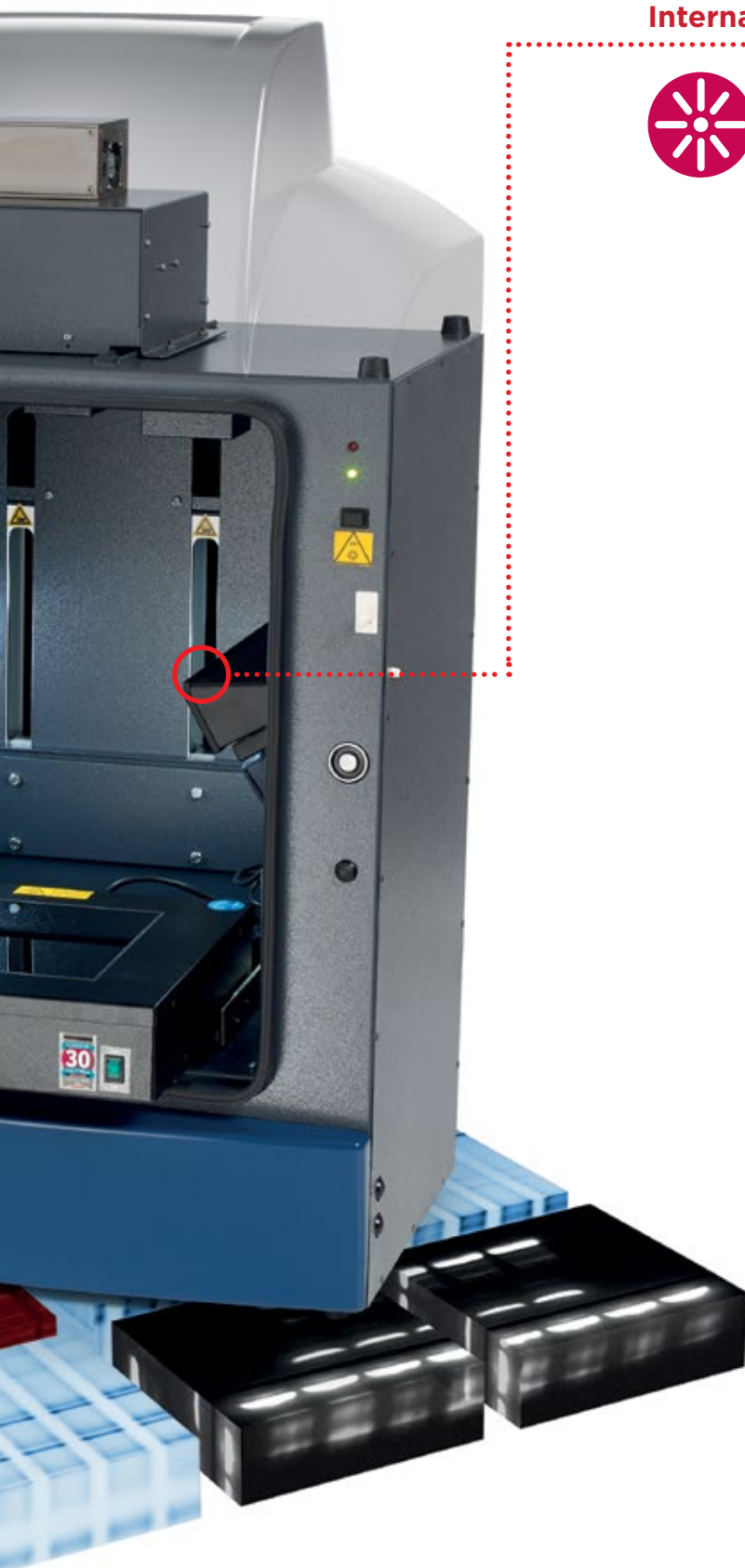
A motor driven filter wheel is standard across the **G:BOX** range. This 7 position filter wheel enables an extensive range of emission filters to be used for an array of applications. Filter selection is controlled by GeneSys. An orange UV filter is supplied as standard. See filter list for the full range of options.

Adjustable stage



G:BOX has two darkroom designs. For the **G:BOX** F3, and the Chemi XRQ the standard sized darkroom is used and for the **G:BOX** Chemi XT4, XX6 and XX9 models the 'extended' version of the darkroom is utilised. This extended darkroom has a fully variable motor driven stage which is controlled by GeneSys. This enables samples to be moved closer to the camera and is especially useful when working with smaller format gels and blots. Being closer to the lens also helps when looking at low output gels and blots, allowing greater light capture by the camera. The stage is linked with GeneSys so that the lens automatically 'tracks' the sample as it is moved up and down, providing an auto-focus function.





Internal lighting



White light

Standard in every **G:BOX** is an integral white LED EPI lighting system for the viewing of visible light blots, sample positioning and when imaging colorimetric markers on Western blots.

EPI ultra violet light option

When overhead EPI UV is required for blots and gels or other sample types, a UV module with either a 254nm, 302nm or 365nm UV tube can be fitted on either side of the darkroom.

LED EPI lighting options

To extend the range of applications, the **G:BOX** can use a unique 'plug and play' lighting system with red, green, blue and IR LEDs. The compact lighting modules are single wavelength devices with integral excitation filters which simply clip into a gantry which is fitted to both sides of the darkroom.

Up to 4 modules can be plugged into each side of the darkroom, either of the same or of mixed wavelengths. There are a number of different LED modules to choose from. Standard modules have cut-off filters and generally produce a wider output wavelength whereas the 'M' series modules are fitted with special 'narrow band' pass filters which allow for the imaging of multiplexed blots with minimal 'cross-talk' between dyes.

Visible transmitted light options

For transmitted light applications such as Coomassie and silver stain gels, a conversion screen is available. This screen is placed over the UV transilluminator to produce a large, evenly illuminated white light area.

White light pad options

An electronic white light pad is available as an option for users who prefer to use this method for white light rather than a visible light converter screen. Different sizes are available to suit different sample sizes – 20 x 14cm and 20 x 30cm are available.

UV transilluminator option

A 302nm UV transilluminator can be used to excite a range of gel types including Ethidium bromide stained DNA gels and stain-free gels. The transilluminator slides in and out of the darkroom on rollers for easy access. Other wavelengths including dual wavelengths are available.

Blue light transilluminator

An LED transilluminator operating at 470nm is suitable for use with a range of dyes including all the 'safe-dyes' which are used as an alternative to Ethidium bromide. The UltraBright Blue LED unit has high output illumination for many applications.

G:BOX

Choose your system

Applications index



DNA GELS



PROTEIN GELS



MULTIPLEX GELS - 3 or more colours



COLONY COUNTING



2D GELS (DIGE)



CHEMILUMINESCENCE BLOTS



COLORIMETRIC BLOTS



STAIN FREE IMAGING



FILMS



INFRA RED IMAGING



BIOLUMINESCENCE



GFP PLANT IMAGING

G:BOX F3

Affordable system for routine fluorescent and visible gel imaging

High resolution 3.8m pixel camera for good spatial resolution

Effective resolution up to 15.3m pixels

Motor driven lens with feedback

Integral LED white lighting for sample positioning, visible light applications and colorimetric markers

Motor driven 7 position filter wheel with UV filter to extend applications

Automatic or manual control using GeneSys

Pre-defined 'one click' protocols for speedy imaging

Unlimited user saveable protocols

Use with UV transilluminator for DNA imaging - use converter screen for visible light applications such as protein gels

Use with Blue LED UltraBright transilluminator for 'safe-dye' applications

Includes unlimited copies of GeneTools analysis software

IQ/OQ qualification protocols available as optional

Upgradeable to Chemi XRQ



G:BOX Chemi XRQ

Affordable system for fluorescent and visible gels and chemiluminescent Western blots

High resolution, High QE 73% @ 425nm 4m pixel images with enhanced cooling for longer exposure times - suitable for chemiluminescence

Effective resolution up to 16m pixels

Motor driven lens with feedback

Integral LED white lighting for sample positioning, visible light applications and colorimetric markers

Motor driven 7 position filter wheel with UV filter to extend applications

Automatic or manual control using GeneSys

Pre-defined 'one click' protocols for speedy imaging

Unlimited user saveable protocols

Use with UV transilluminator for DNA imaging - use converter screen for visible light applications such as protein gels

Use with Blue LED UltraBright transilluminator for 'safe-dye' applications

Includes unlimited copies of GeneTools analysis software

IQ/OQ qualification protocols available as optional

Built-in light gantries for LED EPI illumination options





G:BOX Chemi XT4

Optimum performance system. Highly sensitive for advanced chemiluminescent Western blots, multiplex gels and routine imaging of fluorescent and visible gels and blots

High resolution 4.2m pixel camera with high sensitivity. Advanced cooling for very long exposure times

Effective resolution up to 16.76m pixels

Motor driven lens with feedback

Integral LED white lighting for sample positioning, visible light applications and colorimetric markers

Motor driven 7 position filter wheel with UV filter to extend applications

Automatic or manual control using GeneSys

Pre-defined 'one click' protocols for speedy imaging

Unlimited user saveable protocols

Use with UV transilluminator for DNA imaging - use converter screen for visible light applications such as protein gels

Use with Blue LED UltraBright transilluminator for 'safe-dye' applications

Includes unlimited copies of GeneTools analysis software

IQ/OQ qualification protocols available as optional

Built-in light gantries for LED EPI illumination options

Fully variable motor driven sample stage to accommodate large to small gel formats. GeneSys controlled with auto focus

Powerful automatic multiplex capture protocol using red, green or blue LED EPI modules

Add IR Multiplex kit, EPI lighting modules and filters to image IR blots using dyes from LI-COR® and DyLight

Add Edge Lighting unit for 2D gel imaging (DIGE)



G:BOX Chemi XX6

Optimum performance system. Highly sensitive for advanced chemiluminescent Western blots, multiplex gels, IR and routine imaging of fluorescent and visible gels and blots. Higher spatial resolution for advanced applications including 2D

Super high resolution with 6m pixel camera having QE greater than 73% @ 425nm giving outstanding sensitivity for chemiluminescence

Effective resolution up to 18m pixels

Motor driven lens with feedback

Integral LED white lighting for sample positioning, visible light applications and colorimetric markers

Motor driven 7 position filter wheel with UV filter to extend applications

Automatic or manual control using GeneSys

Pre-defined 'one click' protocols for speedy imaging

Unlimited user saveable protocols

Use with UV transilluminator for DNA imaging - use converter screen for visible light applications such as protein gels

Use with Blue LED UltraBright transilluminator for 'safe-dye' applications

Includes unlimited copies of GeneTools analysis software

IQ/OQ qualification protocols available as optional

Built-in light gantries for LED EPI illumination options

Fully variable motor driven sample stage to accommodate large to small gel formats. GeneSys controlled with auto focus

Powerful automatic multiplex capture protocol using red, green or blue LED EPI modules

Add IR Multiplex kit, EPI lighting modules and filters to image IR blots using dyes from LI-COR® and DyLight

Add Edge Lighting unit for 2D gel imaging (DIGE)



G:BOX Chemi XX9

Optimum performance system. Super high sensitive for advanced chemiluminescent Western blots, multiplex gels, IR and routine imaging of fluorescent and visible gels and blots. Optimum spatial resolution for advanced applications including 2D

Optimum high resolution with 9m pixel camera having QE greater than 73% @ 425nm giving outstanding sensitivity for chemiluminescence

Effective resolution up to 27m pixels

Motor driven lens with feedback

Integral LED white lighting for sample positioning, visible light applications and colorimetric markers

Motor driven 7 position filter wheel with UV filter to extend applications

Automatic or manual control using GeneSys

Pre-defined 'one click' protocols for speedy imaging

Unlimited user saveable protocols

Use with UV transilluminator for DNA imaging - use converter screen for visible light applications such as protein gels

Use with Blue LED UltraBright transilluminator for 'safe-dye' applications

Includes unlimited copies of GeneTools analysis software

IQ/OQ qualification protocols available as optional

Built-in light gantries for LED EPI illumination options

Fully variable motor driven sample stage to accommodate large to small gel formats. GeneSys controlled with auto focus

Powerful automatic multiplex capture protocol using red, green or blue LED EPI modules

Add IR Multiplex kit, EPI lighting modules and filters to image IR blots using dyes from LI-COR® and DyLight

Add Edge Lighting unit for 2D gel imaging (DIGE)



POWERED BY GENESYS

Applications at the touch of a button

GeneSys control software

GeneSys is unique, intuitive software for the control and image capture of any Syngene system including all **G:-BOXs**. Unlike other capture software, GeneSys is 'application driven'. At the heart of GeneSys is an extensive database which contains an impressive list of dye and protocol data. The user only needs to tell GeneSys which application they are using along with their gel or blot size and the software will automatically configure the system for that application. The resulting captured images are of exceptional quality and can be reproduced time after time. GeneSys is a truly unique application driven software unequalled by others.

The **G:BOX** can be used in a fully automated mode which means the user needs no experience in image capture. For those who wish to select their own settings a manual mode is available. To automate the **G:BOX** further the user can save their own protocols on the Home page. Protocols save the sample type, dyes, lighting and filters used and the position of the iris/focus and sample size so the user 'clicks' only one button to go from sample positioning to image capture. This is especially useful when running a number of repeat applications.

When it comes to multiplexing, GeneSys provides an impressive protocol which takes care of all lighting, filter and exposure settings for each fluorophore. Up to 5 different fluorophores can be imaged at a time which can then be displayed as a multichannel image, as a colour overlay or as single images. No other system can give you such an automated process of multiplexing applications.

“GeneSys is a truly unique application driven software unequalled by others”



For Western blot applications GeneSys automatically determines the optimum settings for perfect images using any chemiluminescent reagent. Single images or a series of timed images can be captured if required. You can also image molecular weight or colorimetric markers which are automatically overlaid with your chemiluminescent image.

GeneSys has a number of automatic functions which help the image capture process to produce perfect, high quality images.

Effective resolution

The effective resolution on each **G:BOX** system can be used to output larger resolution images. This is especially useful for publication purposes.

Flatfix technology

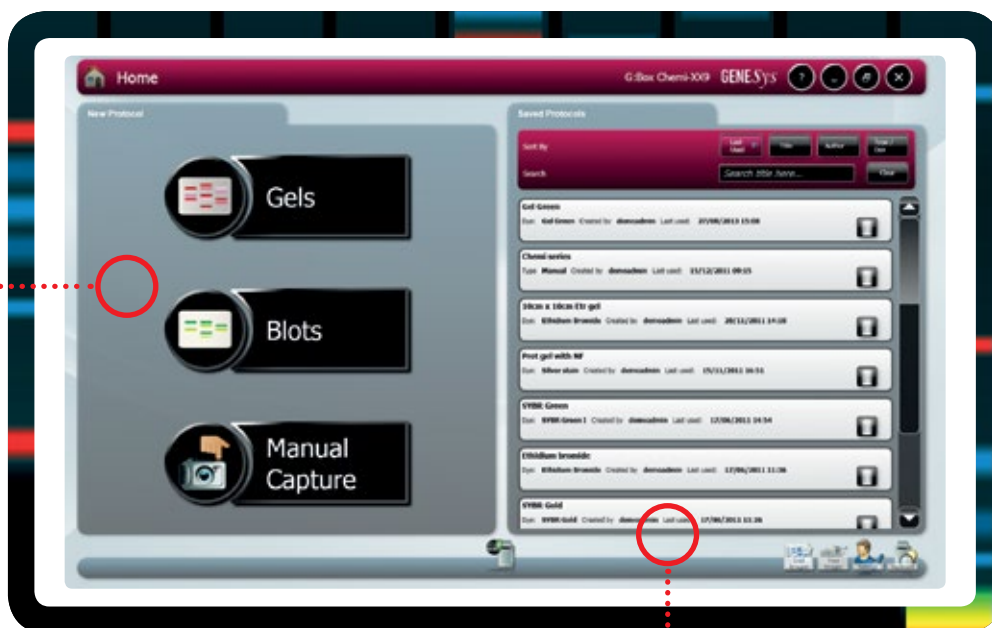
This is Syngene's unique algorithm which perfects image capture. Cameras have automatic correction to eliminate any hot pixels or imperfections. This leaves the image background clear from any 'speckles' or 'spots' which would degrade the image quality.

Neutral fielding

When working with white light backgrounds a neutral fielding process can be used to give perfect 'flat' backgrounds to images.

Auto gamma control

Another automatic function is a gamma control which sets the black and white levels of the captured image to an optimum setting. This results in improved definition between bands or spots and the background of the image.



Select gel or
blot or manual
mode

Choose from any saved
configurations for fast-
er imaging

G:BOX APPLICATIONS

Applications you can image with a G:BOX

Multiplex fluorescence detection

G:BOX Chemi systems offer enhanced sensitivity ensuring that the broad dynamic range available with fluorescence is captured providing exceptional linearity for accurate quantification.

GeneSys image capture software can effortlessly detect multiple proteins simultaneously. Detect up to five different fluorophores on the same gel or blot. Band intensity values can be normalised to another protein or a loading control eliminating the need to strip and re-probe.

GeneSys software automatically overlays image data from each fluorescent channel whilst allowing the user to view individual fluorescent channels to detect overlapping bands.

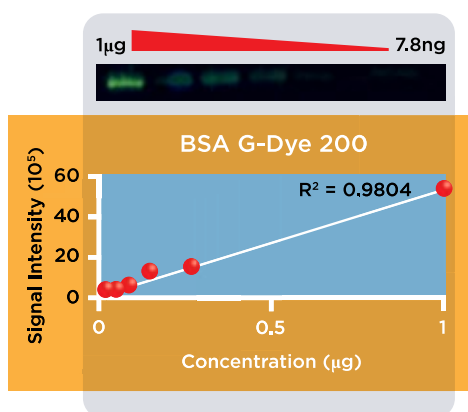
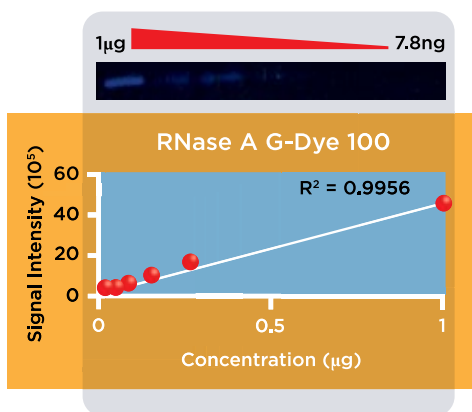


Table 1

System	Detection limit (LOD) (µg)	Linearity (R^2)		
		Blue channel	Green channel	Red channel
G:BOX Chemi XX9	0.0078	0.99	0.98	0.97
G:BOX Chemi XX6*	0.0078	0.97	0.96	0.97
G:BOX Chemi XT4*	0.0078	0.97	0.98	0.98

*Data not shown

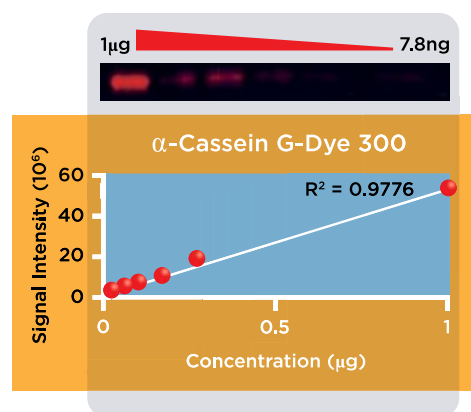


Figure 1 - Multiplexed fluorescent Western blot

Proteins BSA, α-cassein and RNase A were diluted two-fold ranging from 1 µg to 7.8 ng. The gel was probed with G-Dye¹⁰⁰, G-Dye²⁰⁰ and G-Dye³⁰⁰ (NH DyeAgnostics, GmbH). Signal Intensity was calculated by raw volume using GeneTools analysis software (Syngene, UK). Images were captured using GeneSys image capture software on a **G:BOX** Chemi XX9 system.

R^2 and LOD values are shown in Table 1.

Stain-free imaging

Stain-free technology removes extra steps and long delays from staining. The stain-free protocol has comparable sensitivity to that of more traditional techniques such as, Coomassie Blue Safe staining.

All **G:BOX** systems are stain-free ready and with GeneSys software it has never been easier to capture perfect images of your stain-free gels.

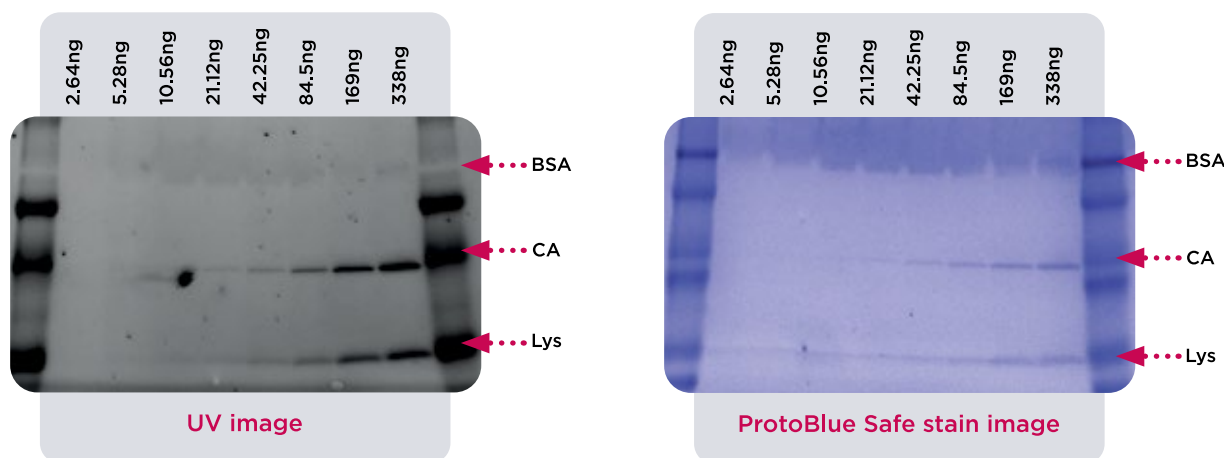


Figure 2 - Stain-free gel imaging compared to ProtoBlue safe staining.

Serial dilutions (338-2.64ng) of a protein mixture (BSA, Carbonic anhydrase and Lysozyme) were run on a Criterion 4-20% TGX Stain-Free gel and imaged with UV on a **G:BOX** Chemi system and additionally stained with ProtoBlue Safe stain. The linearity and sensitivity of the stain-free method is comparable to the ProtoBlue Safe stain method.

Chemiluminescence

With GeneSys, automatic imaging of chemiluminescent blots has never been easier. Take the guess work out of imaging and let GeneSys determine the optimal exposure depending on whether a speedy image or a high quality image is required.

Achieve dynamic ranges that surpass film to ensure fully quantifiable data with all **G:BOX** Chemi systems.

Ensure that with GeneSys software you never saturate your bands and easily capture visible markers that are overlaid with your chemiluminescent image for molecular calculation.

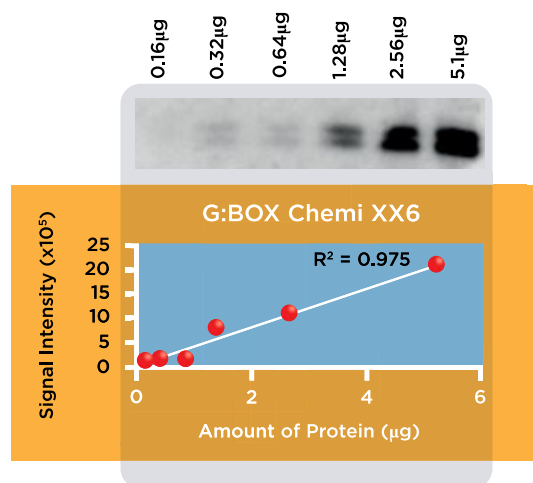


Table II

System	Detection limit (LOD) (µg)	Dynamic range		
		Linearity (R ²)	Orders of magnitude**	Range
G:BOX Chemi XX9*	0.16µg	0.9531	1.5	5.1-0.16µg
G:BOX Chemi XX6	0.16µg	0.975	1.5	5.1-0.16µg
G:BOX Chemi XT4*	0.32µg	0.9585	1.2	5.1-0.32µg
G:BOX Chemi XRQ*	0.32µg	0.9817	1.2	5.1-0.32µg

*Data not shown **calculated over data range shown

Figure 3 - Chemiluminescence Western blot

Jurkat whole cell lysate was diluted 2-fold (5.1-0.16µg) probed with Ferrochelataase followed with anti-mouse HRP secondary antibody and incubated with ChemiFast chemiluminescence substrate. Signal intensity was calculated from raw volume using GeneTools analysis software (Syngene, UK). Image was captured on a **G:BOX** Chemi XX6 system.

R² and LOD values are shown in Table II.

The **G:BOX** range are versatile systems capable of imaging a wide range of applications from DNA detection with Ethidium bromide or 'safe' dyes to protein analysis of Coomassie blue stain or silver stained gels to fluorescent stained gels and blots e.g. Chemiluminescence, QDots, DyLight, Alexa Fluor, Cy Dyes, and LI-COR® IR dyes, bioluminescence and GFPs as well as stain free imaging.

GEL AND BLOT ANALYSIS WITH GENETOOLS

Automated analysis at the click of a button

GeneTools analysis software provides rapid and powerful gel analysis. Automatic detection of lanes and bands, viewing densitometry profiles and user-friendly functions allow for customisation and adjustments to be made.

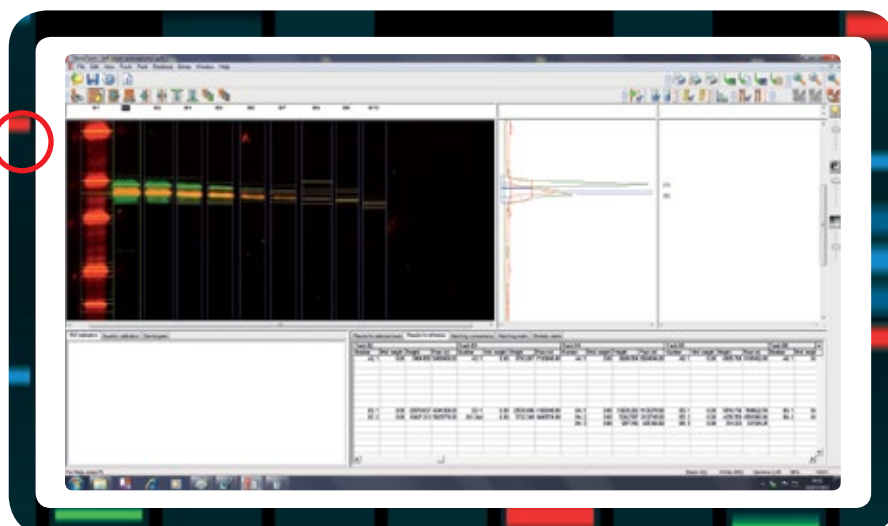
It has never been easier to analyse multiplexed gels or blots with GeneTools making it possible to view and analyse overlaid channels to automatically detect bands in separate channels at the same time and to also view individual channels.

Share and export data easily. Save, open and analyse image files, export data reports directly to Microsoft Excel and Word.

“It has never been easier to analyse multiplexed gels or blots”

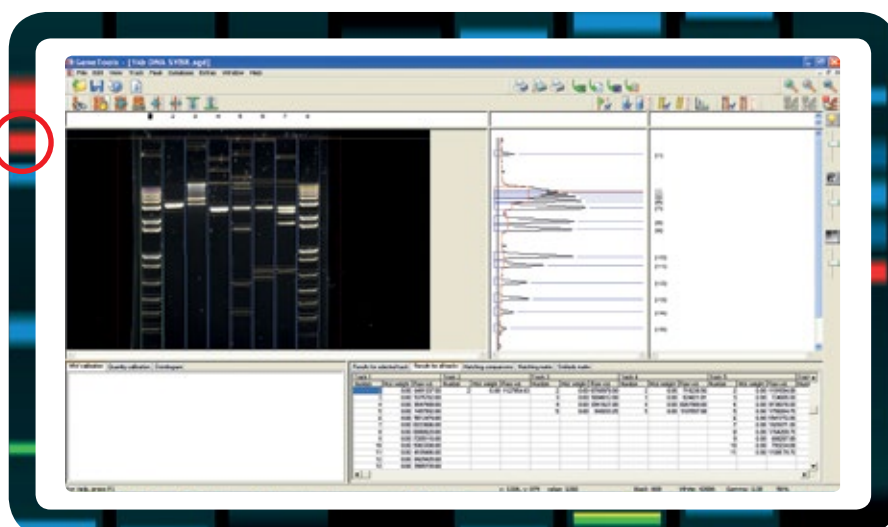
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Accurately quantify a multiplexed Western blot using GeneTools



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Automatically detect lanes and bands and easily add molecular weight ladders with GeneTools



● 1D gel analysis ● MW/BP calculation ● Quantification ● E-gels ● Band matching with dendrograms ● Spot blots ● Colony counting ● GeneDirectory (option) for extended band matching, cluster analysis, VNTR analysis, genotyping, RFLP studies, dendrogram generation and bootstrapping.

GENEDIRECTORY

Data storage and extended band matching software

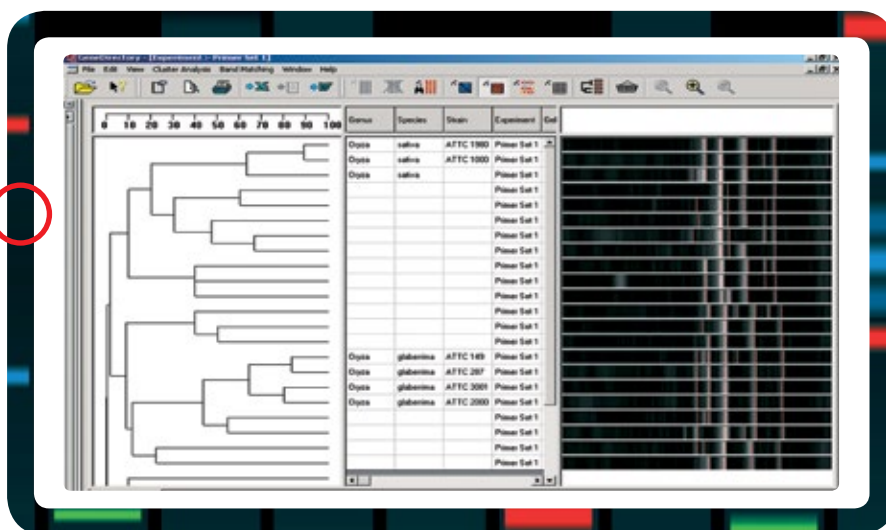
GeneDirectory is a must for anyone running large numbers of 1D gels and who needs to make inter-gel comparisons. Using the data output from GeneTools, the 1D gel analysis package, GeneDirectory acts as a database for track and band results and as a tool to quickly produce relationship dendrograms.

“Inter-gel comparison and dendrogram generation at the click of a button”

Key features are:

- Versatile storage and comparison facilities
- User-defined libraries based on classification data
- Methods for combining multiple patterns from any gel, experiment or library
- Band matching across multiple experiments, showing dendrograms, matching matrix tables, coefficient tables and matching results
- Ability to search the entire database for matching tracks based on band or classification similarities
- Complex co-dominance and dominance analysis
- Generations of cluster analysis diagrams
- Secure storage of data in a fully GLP compliant relational database
- Direct export of data to Excel™ spreadsheets, Word™ or text files

View track information and dendrograms side by side



Matching co-efficients table

	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
1	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
2	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
3	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
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5	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
6	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
7	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
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9	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
10	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
11	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
12	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
13	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
14	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
15	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
16	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
17	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
18	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
19	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
20	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	
21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	0.00	
22	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	0.00	
23	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	0.00	
24	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	0.00	
25	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	0.00	
26	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	0.00	
27	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00	
28	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	1.00

FILTERS

Emission filters for use with an impressive choice of applications

All **G:BOXs** are supplied with an orange UV filter as standard, fitted into the motor driven filter wheel. To extend the number of applications that can be used with the **G:BOX**, a range of emission filters are available. These can be fitted to the filter wheel as required.



Filter	Wavelength range nm	Description
UV06	572-625	UV filter for G:BOX Chemi systems (standard)
UV032	572-630	UV filter for G:BOX F3 (standard)
SW06	516-600	Short pass filter for G:BOX Chemi systems
SW032	515-599	Short pass filter for G:BOX F3
LW06	611-641	Long pass filter for G:BOX Chemi systems
LW032	615-644	Long pass filter for G:BOX F3
FILT440	427-457	Filter
FILT525	516-539 peak 525	Multiplexing filter for blue light applications
FILT565	556-579 peak 565	Filter
FILT605	590-607 peak 605	Filter
FILT605M	594-610 peak 605	Multiplexing filter for green light applications
FILT620	600-640 peak 620	Filter
FILT655	633-660 peak 655	Filter
FILT705	697-717 peak 705	Filter
FILT705M	700-720 peak 705	Multiplexing for red light applications
FILT800	780-820 peak 800	Filter
FRLP	670-780	Red light applications
IR780	782-900	IR applications and more Far-Red applications
LY800	809-876	IR multiplexing filter suitable for IR dye 800 and DyLight 800
NEUTRAL DENSITY	N/A	For neutral fielding epi LED modules

ACCESSORIES AND OPTIONS

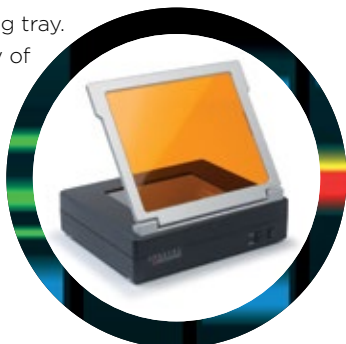
Extending the range of imaging applications

UltraBright LED blue light transilluminator

The UltraBright LED blue light transilluminator can be used with the **G:BOX** for those applications requiring blue light excitation e.g. 'safe' dyes.

The UltraBright can be used within the darkroom on a sliding tray.

The unit has a dual array of high intensity blue light 470nm LEDs, powerful enough to excite all gels. Once connected to the **G:BOX**, control of this lighting is taken care of by GeneSys.



Transilluminator

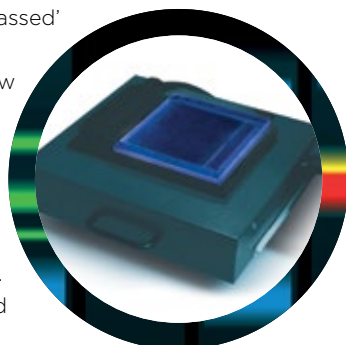
A 302nm UV transilluminator can be used to excite a range of gel types including Ethidium bromide stained DNA gels. The transilluminator slides in and out of the darkroom on rollers for easy access.

Various wavelengths and sizes are available. (See ordering information on website for further information).



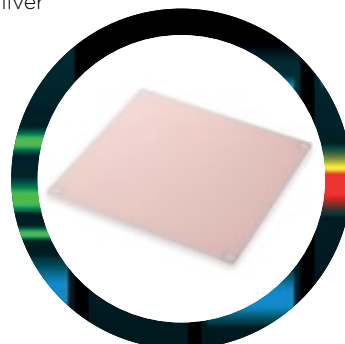
Edge light unit

For users wishing to work with Cy dyes in multiplex applications, (eg DIGE), then a novel Edge lighting unit is available. This unit uses high intensity LED lighting and fibre optics to illuminate gels for the edge. Light is 'passed' through the gel creating fluorescence. The narrow band nature of the lighting enables red, green and blue channels to be captured and viewed with minimal 'cross-talk'. For Chemi XT4, XX6 and XX9 only.



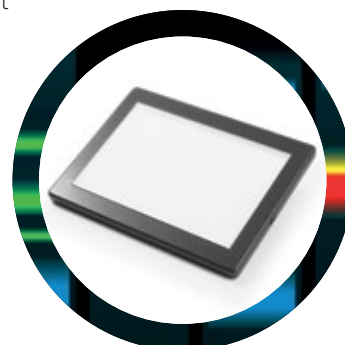
Visible light converter screen

For extending the transmitted light applications such as coomassie gels and silver stain gels, a converter screen is available. This screen is placed over the UV transilluminator to produce a large, evenly illuminated white light area.



White light pad

An electronic white light pad is available as an option for users who prefer to use this method for white light rather than a visible light conversion screen. Various sizes are available to suit different sample sizes. (See website for further information).



LED modules

Plug and play modules which have either red, green or blue LEDs and a corresponding excitation filter, provide a high intensity lighting option for use with an extensive range of coloured fluorophores. More specific 'M' versions of the modules are available for use with multiplexed applications.

IR versions of the modules are also available for imaging LI-COR® IRdyes and other IR Dye alternatives. The IR Multiplexing kit gives you all the lighting and filters required for this application. Modules clip into integral gantries fitted on each side of the darkroom.

This enables the use of up to 8 modules (normally modules are used as pairs - 1 per side).

(Not available on **G:BOX** F3).

(See website for further information).



G:BOX FEATURES AND BENEFITS

Why you should be choosing a G:BOX for your work



Features	Benefits
 New generation very high quantum efficiency cameras	Superior sensitivity – allows capture of very low light emissions from gels and blots
 Fully automatic control	Effortless capture of chemiluminescent and multiplex images without ‘guesswork’
 Wide range of lighting options	Fully programmable to work with any application including complex multiplex experiments

G:BOX SPECIFICATIONS

Choose your G:BOX

	G:BOX F3	G:BOX Chemi XRQ	G:BOX Chemi XT4	G:BOX Chemi XX6	G:BOX Chemi XX9
System					
Image resolution (pixels m)	3.8	4	4.2	6	9
Effective resolution (pixels m)	15.3	16	16.76	18	27
A/D	12/16 bit	16 bit	16 bit	16 bit	16 bit
Greyscales	65536	65536	65536	65536	65536
Quantum Efficiency @ 425nm	52%	73%	53%	73%	73%
Cooling - regulated	N/A	-57C	-57C	-57C	-57C
Lens (Motor driven)	f1.2	f1.2 with feed back	f0.95 with auto focus	f0.95 with auto focus	f0.95 with auto focus
Filter wheel (7 position motor driven)	Yes	Yes	Yes	Yes	Yes
UV Filter**	Yes	Yes	Yes	Yes	Yes
Use with external PC *	Yes	Yes	Yes	Yes	Yes
Darkroom					
Standard	Yes	Yes			
Extended with motor driven stage			Yes	Yes	Yes
Illumination					
Epi LED White lights	Yes	Yes	Yes	Yes	Yes
EPI UV 302nm****	Optional	Optional	Optional	Optional	Optional
EPI Red LED module		Optional	Optional	Optional	Optional
EPI Blue LED Module		Optional	Optional	Optional	Optional
EPI Green LED Module		Optional	Optional	Optional	Optional
EPI Red LED module M series for multiplexing		Optional	Optional	Optional	Optional
EPI Green LED Module M series for multiplexing		Optional	Optional	Optional	Optional
EPI Blue LED Module M series for multiplexing		Optional	Optional	Optional	Optional
EPI IR LED module		Optional	Optional	Optional	Optional
IR Multiplexing kit (680 - 800nm)		Optional	Optional	Optional	Optional
Visible light converter 33 x 31cm	Optional	Optional	Optional	Optional	Optional
White light pad for visible stains (20 x 14 or 20 x 30cm****)	Optional	Optional	Optional	Optional	Optional
UltraBright LED Blue light transilluminator 20 x 16cm	Optional	Optional	Optional	Optional	Optional
Edge lighting unit 26.5 x 20cm			Optional	Optional	Optional
UV Transilluminator 302nm 20 x 20cm***	Optional	Optional	Optional	Optional	Optional
Dimensions					
Max image area (cm)	25.5 x 21	30.5 x 22.7	19 x 19	32.3 x 25.6	32.3 x 25.6
Min image area (cm)	4.5 x 3.8	5.5 x 4	9 x 9	15 x 11.8	15 x 11.8
w x h x d (cm)	57 x 84 x 45	57 x 84 x 45	57 x 99 x 55	57 x 99 x 55	57 x 99 x 55
Weight (kg)	37	37	45	45	45
Voltage	115v/240v	115v/240v	115v/240v	115v/240v	115v/240v

*See web site for current specifications

**See list of other available emission filters

*** Other sizes and wavelengths available including dual wavelength

**** Other wavelengths available

***** For G:BOX F3 & Chemi XRQ only

We reserve the right to alter specification without prior notice.

Over 75,000 scientists world-wide in pharmaceutical and biotech companies, as well as academic and government institutions, have chosen Syngene as their expert imaging partner. If you'd like to find out why, please contact us or one of our dealers for more information and a demonstration of the revolutionary **G:BOX**

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