



**MULTI FLUORESCENCE
AND CHEMILUMINESCENCE
IMAGING SYSTEMS**

**REAL IMAGING FOR
REAL SCIENTISTS**



S Y N G E N E
A DIVISION OF THE SYNOPTICS GROUP

REAL IMAGING ROBUST RESULTS

Great research comes from accurate Western blot and gel data. With so many ways to image chemiluminescence, fluorescent and visible dyes, you need to know which imaging systems truly capture real results.

At Syngene, our experts only develop image analysis systems and have done so for over 30 years. We listen to scientists and then using our deep understanding of the science of imaging, we deliver high performance, hassle-free automation that anyone in the laboratory can use.

For blot and gel results you can trust today and tomorrow, you can't beat a G:BOX Chemi system.

ACCURATE

Combining cooled, high resolution camera and unique optical imaging means your **G:BOX Chemi** generates true-to-life images not just digitally enhanced ones. With a **G:BOX Chemi** you'll resolve close chemi and fluorescent bands or spots even on complex gels and know they're real.

SENSITIVE

The **G:BOX Chemi** systems are multi-application powerhouses for accurately imaging fluorescence, multiplex westerns, agarose DNA gels, visible protein gels, stain free gels and chemi blots. Fully integrated with computer controlled intuitive GeneSys software, you can utilise the impressive 4.8OD dynamic range of a **G:BOX Chemi** to detect femtogram quantities of DNA and proteins time after time.

FAST

Featuring the option to use not just white LEDs but a range of multi-coloured channels which are up to 200 times brighter than standard LEDs, the **G:BOX Chemi** range gives you fast exposure and brilliant multiplex fluorescence images. See our website for latest developments.

FUTURE-PROOF

With our guarantee of free software upgrades not just today but throughout your system's life, your **G:BOX Chemi** will always have the latest imaging capabilities.





“HASSLE FREE IMAGING
AND RESULTS YOU
CAN TRUST”

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TOP IMAGING FROM TOP TECHNOLOGY



HIGH PERFORMANCE LENS

Great images start with a great lens and the lenses in **G:BOX Chemi** systems are the best. Using GeneSys software, the **G:BOX Chemi** controls the lens easily, getting you the results you want to see.



HIGH RESOLUTION CCD CAMERAS

Super-high 4, 6 or 9 megapixel resolution cameras that work hard over a range of wavelengths to ensure you'll separate those close fluorescent bands and spots.



SUPER LOW COOLING

Peltier cooling lets you increase exposure times to detect your faint chemiluminescence without adding annoying background noise.



FILTER CHOICE

A 7-position motor-driven filter wheel controlled by GeneSys software allows you to add the filter for the fluorescent stain you like to work with. Since imaging ethidium bromide and SYBR[®] stained DNA gels are common, we've even included a UV filter to get you started.



REAL IMAGING

When you're working with smaller and low light emitting gels and blots, the **G:BOX Chemi** systems are brilliant because they let you get your samples the right distance from the camera, generating true-to-life optical images not just digitally enhanced copies.



TOTAL CONTROL

Easily integrating a **G:BOX Chemi** to your choice of PC and printer gives you greater flexibility than using a tablet, allowing you to run the GeneSys touch screen controls on a large screen, store a huge number of images and rapidly print publication quality pictures.

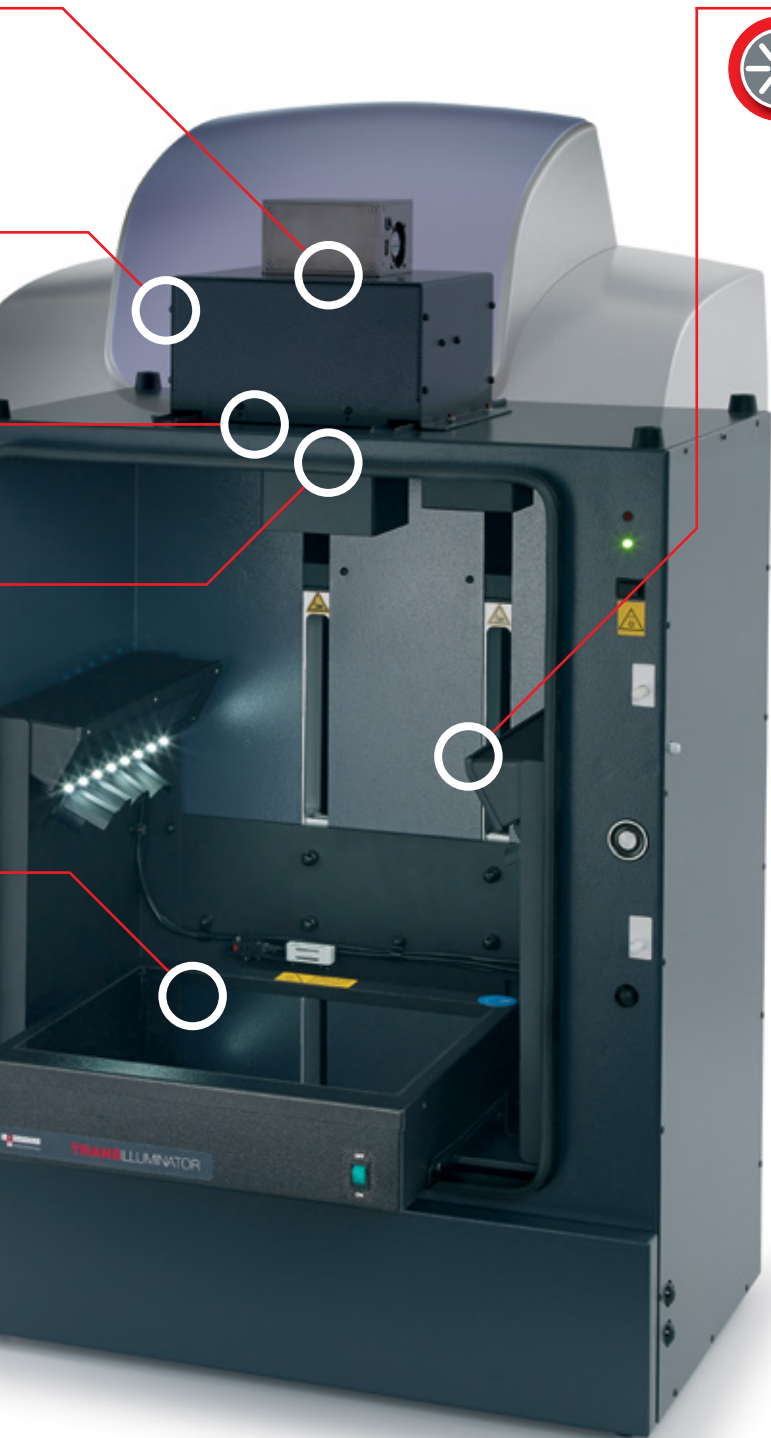


SUPERB SUPPORT

With Syngene's exclusive three-year service and support warranty, unlimited copies of GeneSys and GeneTools image analysis software and free software upgrades, you'll always have access to the latest application capabilities without any hidden extra costs.



RIGHT LIGHTING, RIGHT APPLICATION



WHITE LIGHT

To position your samples, see visibly stained blots and coloured markers on Westerns, the **G:BOX Chemi** comes with overhead environmentally-friendly, long-life white LED EPI lighting.

EPI UV LIGHT OPTION

For imaging fluorescent blots and gels, you can choose to have a UV module with either a 254nm, 302nm or 365nm UV tube fitted on either side of the **G:BOX Chemi** darkroom.

HI-LED EPI LIGHTING OPTIONS

When imaging multiplex fluorescent gels and blots, you have a range of HI-LED channels, including red, blue, green, IR and UV. HI-LEDs are up to 200 times brighter than standard LEDs, giving you faster exposure times and great images, making the **G:BOX Chemi** an unrivalled, cost-effective alternative to laser-based technology. For other available HI-LEDs, see the website.



UV TRANSILLUMINATOR OPTION

If you simply need to see ethidium bromide stained DNA gels and stain free protein gels then opt for the slide in and out, easy access 302nm UV transilluminator. 254nm and 365nm wavelengths are also available.

VISIBLE TRANSMITTED LIGHT OPTIONS

For viewing Coomassie Blue, silver stain and other visible stained gels, a conversion screen is available which you can place over the UV transilluminator to produce a large, evenly illuminated white light.

BLUE LIGHT CONVERTER SCREEN

If you want to view 'safer' fluorescent dyes such as SYBR safe, you can choose the optional blue light conversion screen which sits over the UV transilluminator to produce blue light at 460nm.

BLUE LIGHT TRANSILLUMINATOR OPTION

For visualising many fluorescent dyes including ethidium bromide and the safe dyes without using UV, you can choose the 470nm UltraBright Blue LED transilluminator.

GENESYS SOFTWARE LOAD AND GO IMAGING



At the heart of the **G:BOX Chemi** range is the unique, 'application driven', GeneSys software containing an extensive database of dyes, stain free options and imaging protocols. For quick and easy imaging with a **G:BOX Chemi**, all you need to know is the size and type of gel or blot you're using and GeneSys automatically selects the right lighting, filters and focus for you to get the perfect image.

CUSTOMISABLE SETTINGS

If you prefer to choose your own settings, you can even use GeneSys in manual mode. Alternatively, if you're running several repeat applications and want to automate the workflow, you can save a protocol of sample type, dyes, lighting, filters, focus and sample size to set up one button quick image capture or use the system protocols already set up on your system.

VERSATILE MULTIPLEXING

Using GeneSys you can image up to five different fluorophores at a time to see them as a multi-colour image or as single images, making it easier for you to find the information you want from your gel or blot.

Select gel or blot or manual mode

Choose from any saved configurations for faster imaging



BRILLIANT WESTERNS

When you're imaging low light chemiluminescence westerns you can use the GeneSys binning feature to reduce exposure times. Binning combines pixels into 2x2, 3x3, 4x4, 5x5 and 6x6 formats to produce a super pixel which collects more light, increasing sensitivity or speeding up image capture time. GeneSys also lets you generate one image or a series of timed images of your westerns. You can even image colorimetric molecular weight markers and automatically overlay them on your chemiluminescent image making sure that you have perfect western blot images every time.

PICTURE PERFECT

The **G:BOX Chemi** systems come with calibrated cameras which automatically eliminate hot pixels or imperfections, generating a clear background free from 'speckles' or 'spots'. The GeneSys software includes Dynamic Fielding to automatically correct uneven light, producing a perfect 'flat' background and auto gamma control to automatically set the black and white levels, improving definition between bands or spots and image background. The high-resolution cameras produce publication ready pictures, which you can save as proprietary SGD, TIFF, JPEG or BMP formats and with audit trail features, your data is fully 21 CFR Part 11 compliant.

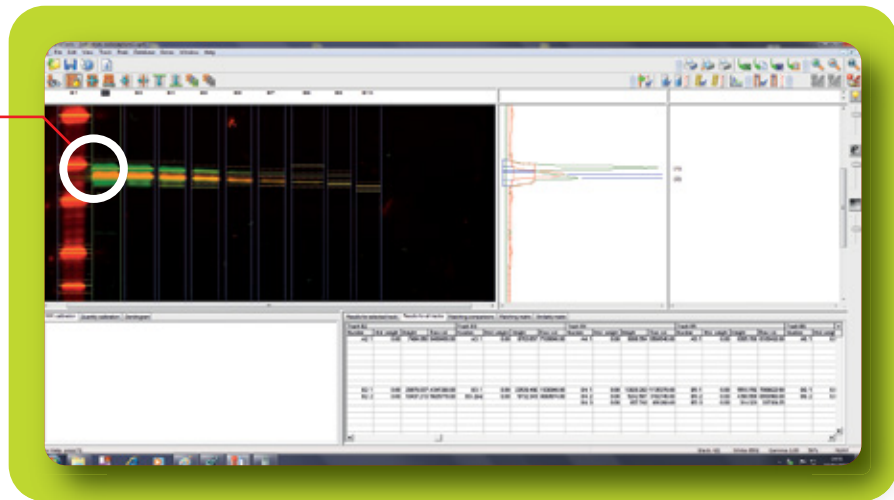
QUICK QUANTIFICATION

GeneSys software includes QuickQuant, for band quantification, saving you time, by allowing you to quantify images of protein and DNA bands while capturing your blot or gel images on the **G:BOX Chemi** system and can be used in a 21 CFR Part 11 compliant environment.

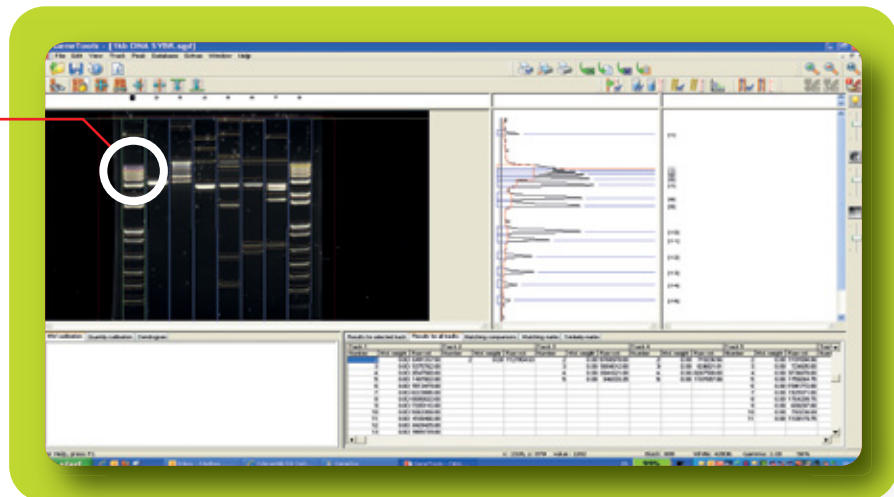
GENETOOLS FAST IMAGE ANALYSIS

The **G:BOX Chemi** uses GeneTools image analysis software to let you rapidly detect lanes and bands as well as view densitometry profiles providing accurate data from your real, captured images. With multiplex gels and blots you can even analyse overlaid channels to find bands in separate channels, at the same time as viewing individual ones. Your data is easily saved as image files or can be exported directly to Excel and Word, and has audit trails so can be used in a regulated environment.

**Accurately quantify
a multiplexed
Western blot using
GeneTools**



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



“IT HAS NEVER BEEN EASIER TO ANALYSE GELS OR
MULTIPLEXED BLOTS”

APPLICATIONS INCLUDE:

- 1-D gel analysis
- MW/BP calculation
- Multiplex gels and blots
- E-gels
- Colony counting
- Adding molecular weight ladders
- Band matching with dendrograms
- Spot and slots blots
- Band quantification (automatic and manual)
- GeneDirectory (option) for extended band matching, cluster analysis, VNTR analysis, genotyping, RFLP studies, dendrogram generation and bootstrapping
- Use in a 21 CFR Part 11 compliant environment

WHAT DO YOU WANT TO IMAGE?

The **G:BOX Chemi** is so versatile that the system can image any of these fluorescence, chemiluminescence and visible applications:

- **Chemiluminescence Western blots**
- **Auto-rads**
- **DNA or RNA stained with ethidium bromide, SYPRO, SYBR and “SAFE” dyes on agarose gels**
- **Coomassie blue or silver stained proteins on acrylamide gels**
- **Stain free gels**
- **Fluorescent gels or blots stained with Qdots, DyLight, Alexa Fluor, Cy Dyes, and LI-COR IR dyes**
- **GFPs**
- **Colonies or plaques on agar plates**
- **Bioluminescence**
- **Plant imaging**
- **In vivo imaging**
- **2D gels**

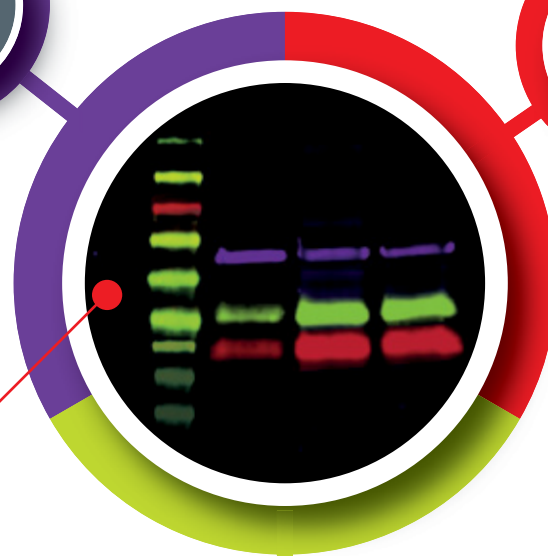


TIME-SAVING MULTIPLEXING

Using a **G:BOX Chemi** you can capture a broad dynamic range of fluorescence, giving you exceptional linearity and accurate quantification. The GeneSys software helps you easily detect up to six multi channels (from UV to IR) on the same gel or blot and automatically overlays data from each channel, while letting you view individual channels to see where bands overlap. For higher performance and resolution, you can use a **G:BOX Chemi XX6 or XX9** for imaging close bands or spots even on complex 2D gels. You can normalise band intensity values to another protein or loading control, so you can save time by using the same blot without having to strip and re-probe. See website for latest developments.

Protein:
SMAD-3
(50kDa),
DyLight488™,
Pseudocolor
purple.

Protein:
GFP
(25kDa),
DyLight800™,
Pseudocolor
red.



Protein:
α-tubulin
(35 kDa),
DyLight649™,
Pseudocolor
green.

Figure 1 – Multiplexed Fluorescent Western blots

The multiplexed western blot image was captured using a **G:BOX Chemi** system with GeneSys image capture software. The Western blot sample was a courtesy from Rockland™ antibodies & assays. DyLight™ is a trademark of Thermo Fisher Scientific Inc.

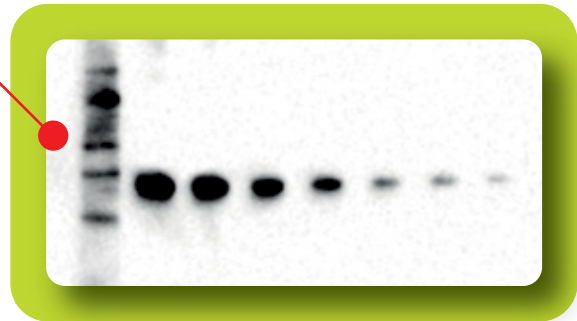


SMART CHEMILUMINESCENCE

When you're imaging chemiluminescence blots, it's often difficult to get the right exposure time. Using GeneSys, you can set the **G:BOX Chemi** to give you the optimum exposure depending on whether you want a quick or a high-quality image. Since the dynamic range of the **G:BOX Chemi** is better than X-ray film you'll get more accurate quantifiable data too. You can even capture images of visible protein markers and using GeneSys you can overlay them on your chemiluminescent image to make your molecular weight calculations easier.

Figure 2 - Chemiluminescence Western blot

SDS PAGE: SERVAGel TG PRIME 8%
 Blotting: Xpress PVDF Blotting-Kit
 Transferrin diluted 2-fold (5.0ng - 4.8pg)
 1st AB a-human-Transferrin, 2nd AB a-rabbit-IgG-HRP
 SERVALight Polaris CL HRP WB Substrate.
 The image was captured on a **G:BOX Chemi**.



SIMPLE STAIN FREE IMAGING

The **G:BOX Chemi** comes with pre-set stain free imaging protocol in the GeneSys software so you can rapidly capture perfect accurate images of your protein gels without all the hassle of staining and de-staining using dyes such as Coomassie Blue.

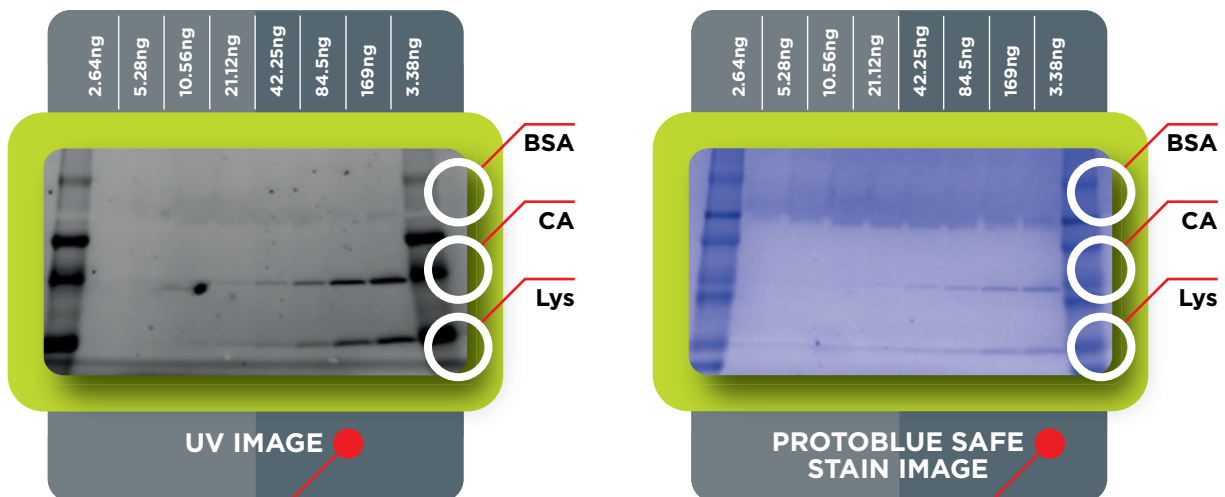


Figure 3 - Stain free gel compared to ProtoBlue safe stained protein gel

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 (Bio-Rad) 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.

SPECIFICATION



| SYSTEM | G:BOX CHEMI XRQ | G:BOX CHEMI XX6 | | G:BOX CHEMI XX9 | |
|---|-------------------------------|-------------------------------|-------------|-------------------------------|-------------|
| Image resolution (megapixels) | 4 | 6 | | 9 | |
| Effective resolution (megapixels) | 16 | 18 | | 27 | |
| A/D | 16 bit | 16 bit | | 16 bit | |
| Greyscale | 65,536 | 65,536 | | 65,536 | |
| Dynamic range OD | 4.8 | 4.8 | | 4.8 | |
| Quantum Efficiency (@ 425nm) | 73% | 73% | | 73% | |
| Lens (motor driven) | F1.2 zoom | F0.80 | F0.95 | F0.80 | F0.95 |
| Stage | Fixed | Moving | | Moving | |
| Filter wheel (7-position motor driven) | All fluorescence applications | All fluorescence applications | | All fluorescence applications | |
| UV filter | Yes | Yes | | Yes | |
| Use with external PC and printer | Yes | Yes | | Yes | |
| LIGHTING | | | | | |
| Epi LED White Lights | Yes | Yes | | Yes | |
| HI-LED (red, blue, green) | Optional | Optional | | Optional | |
| HI-LED (red, infrared) | Optional | Optional | | Optional | |
| HI-LED (red, blue, green, infrared) | Optional | Optional | | Optional | |
| Visible light converter | Optional | Optional | | Optional | |
| Blue converter screen | Optional | Optional | | Optional | |
| Slide-out UV transilluminator 302nm, (20cm x 20cm) | Optional | Optional | | Optional | |
| Edge lighting unit | No | Optional | | Optional | |
| DIMENSIONS | | | | | |
| Max image area (cm) | 30.5 x 22.7 | 34.5 x 27.6 | 32.3 x 25.6 | 34.5 x 27.6 | 32.3 x 25.6 |
| Min image area (cm) | 5 x 3.8 | 15.6 x 12.5 | 15 x 11.8 | 15.6 x 12.5 | 15 x 11.8 |
| W x H x D (cm) | 57 x 84 x 45 | 57 x 99 x 55 | | 57 x 99 x 55 | |
| Weight (kg) | Approx. 37 | Approx. 45 | | Approx. 45 | |
| Power Input (V) | 100-240 | 100-240 | | 100-240 | |

More than 75,000 scientists world-wide use Syngene imaging systems to enhance their research. If you'd like to find out why, please contact us or one of our dealers, for more information and a demonstration to find out which **G:BOX Chemi** system is right for your laboratory.

Please refer to www.syngene.com for all ordering information

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