

Azure™ cSeries

A new way to see the light.



c600 | c500 | c400 | c300

azure
biosystems

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Infrared Laser Excitation for Quantitative Western Blot Imaging in the NIR

Improve Your Data Quality

Imaging with infrared dyes offers signal stability and low background fluorescence. Additionally, imaging with NIR dyes allows you to study multiple proteins in a blot, even if those proteins overlap in molecular weight. Azure Biosystem's cSeries laser technology offers two IR detection channels enabling a user to image more than one protein in an assay.

Sensitive Detection of Proteins with Chemiluminescent Westerns

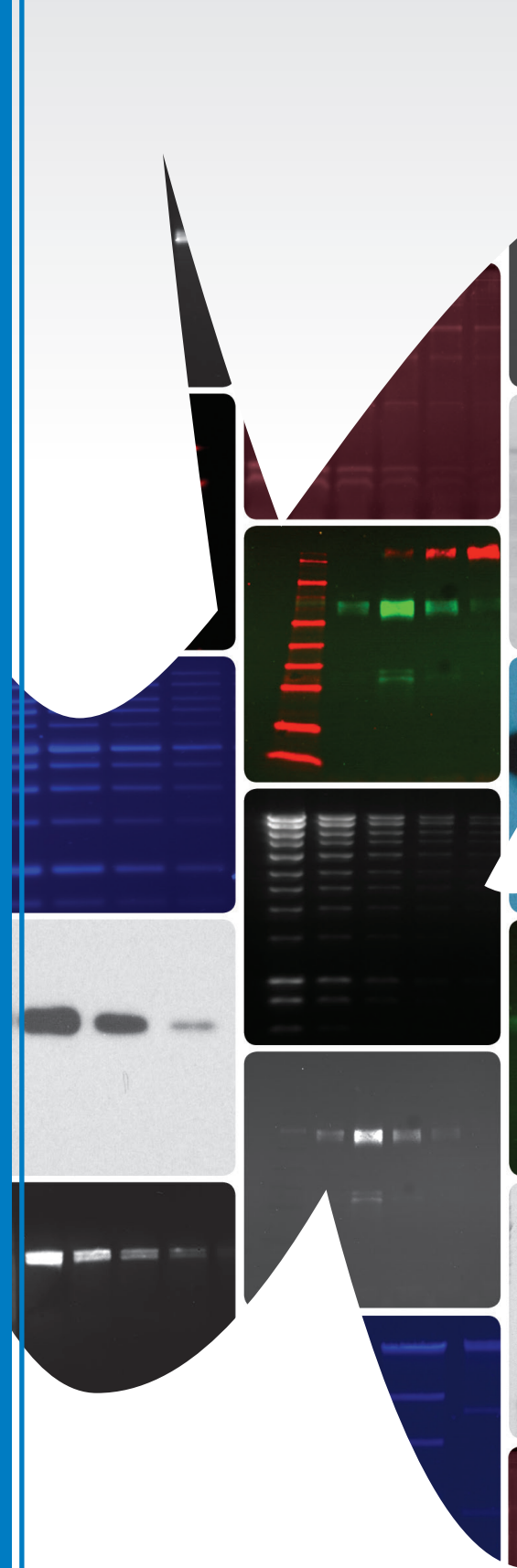
Get Out of the Dark

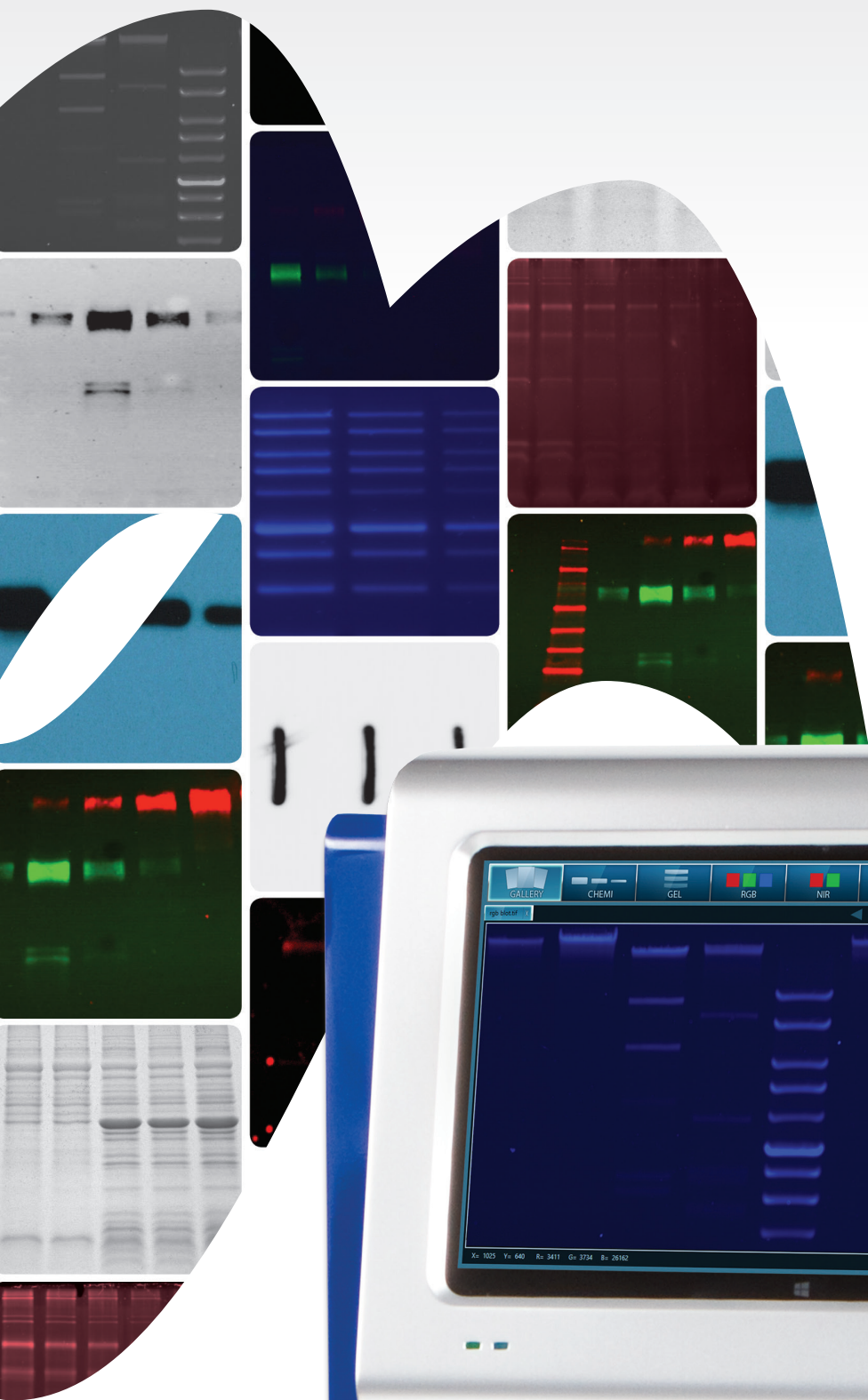
The Azure cSeries provides accurate and fast chemiluminescent detection, as well as the sensitivity, dynamic range, and linearity needed for quantitative blot analysis. Get the best picture every time, and stop wasting money on film.

Use Cy®5/Cy®3/Cy®2 Dyes, Blue-Excited DNA Dyes, and More

A Total Solution for Western Blot Imaging and Gel Documentation

The cSeries is a multichannel, multimodal imager, with IR, visible light, and UV excitation channels. Detect Cy dyes, Alexa® dyes, Safe dyes, and more.





c600

Easy Installation

Just unpack, power-up and start. No technician required.

Compact, Integrated Design

A unique design and integrated tablet computer gives this system a small footprint, saving you room for other tools on the benchtop.

Simple Image Saving

Save to a USB drive, to a network via WiFi or Ethernet, or print to a printer.

Fully Upgradeable

All models can be easily upgraded at a later time to accommodate additional applications.

AzureSpot Analysis Software

Analysis tools for 2D densitometry, automatic land and band detection, background correct, molecular weight calculation, and annotation.

Azure cSeries Features

Tablet

10.1" tablet controls the system with the touch of a finger. Networking is easy, with WiFi or Bluetooth.

Laser Diodes at 660 nm and 785 nm

Narrow band excitation enables NIR applications with better sensitivity than LEDs or white light sources.

RGB LEDs

Excitation at 460, 526, and 628 nm for Cy2/Cy3/Cy5 or similar.

EPI White Lights

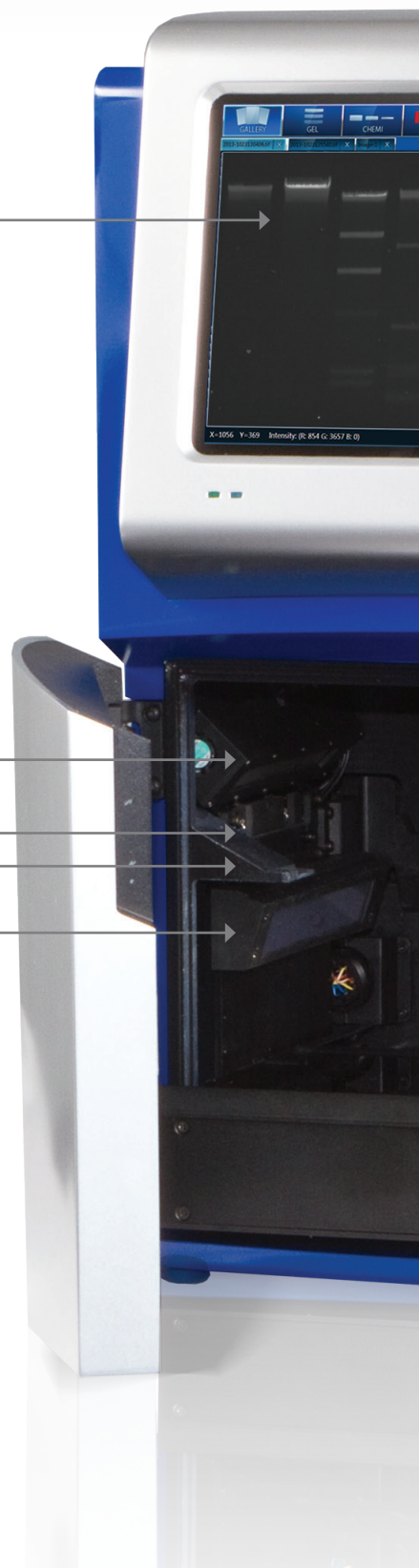
Provide overhead illumination for white light imaging.

EPI Blue LED at 470 for Blue-Excited DNA Dyes

All systems come standard with excitation for dyes like SYBR® Safe, enabling the user to use dyes that are less harmful to the DNA sample, and to the environment.

Visible Dye Imaging

Transilluminated light source for visible or white light dyes such as Coomassie gels or similar.





High Resolution Camera

Capture the finest details of your sample.

Deep Peltier Cooling

-50°C regulated cooling for low-noise images.

Dual-Focus Technology

Image samples in perfect focus, and with optimal lens settings, without having to touch the camera.

7 Position Filter Wheel

The motorized filter wheel allows flexibility of applications.

Chemi Blot Shelf

Place chemiluminescent blots closer to the detector on an adjustable shelf (stored in the door when not in use).

3 USB Ports

Connect to a drive or network, or attach a thermal printer.

FOV

The large field of view allows imaging of large gels and blots, or multiple gels at once.

Dual-Wavelength UV

UV illumination with peaks at 302 and 365 nm. Compatible with a wide range of dyes including ethidium bromide, SYBR® green, SYBR gold, SYPRO® orange, fluorescein, RadiantRed®, Texas Red®, SYPRO Red.

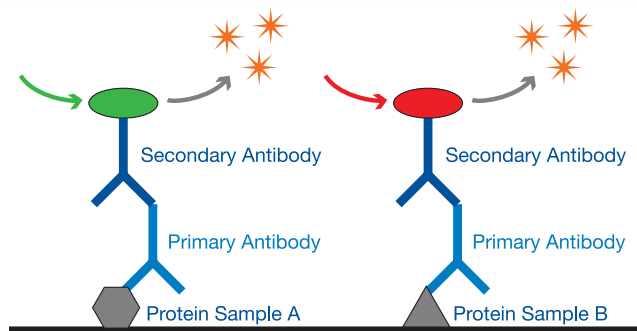
Safety

Safety interlock to prevent accidental UV exposure.



Quantitative Analysis of Infrared Fluorescent Westerns

Why Fluorescent Westerns?



Detect Multiple Proteins in One Assay

Two infrared fluorescent channels for detection enable simultaneous two-color analysis. Save time and sample by detecting multiple proteins in the same assay without needing to strip and reprobe the blot, or having to run a second blot.

Multichannel fluorescent detection also enables normalization of your intensity values to a loading control to correct for inaccuracies in loading.

No Rushing to the Darkroom

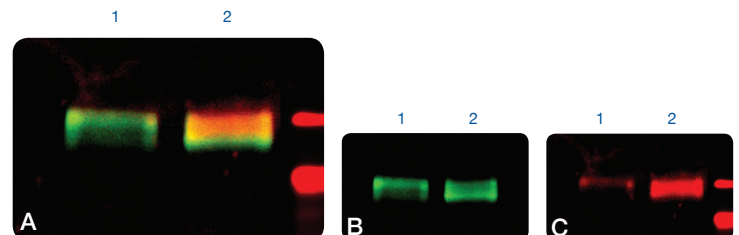
With infrared dyes, data are not contingent on the lifespan of an enzymatic reaction. Using secondary antibodies labeled with IR dyes, detection is convenient. No more rushing to the darkroom before the signal decays. IR dyes offer advanced signal stability for reproducible data that are not time sensitive.



Western blot of human transferrin, probed with IR800 secondary antibody. Images captured at 60 micron resolution, with the same exposure time.

Resolve Co-migrating Bands

Fluorescent Westerns eliminate the need to strip and reprobe when detecting co-migrating bands. This not only saves money spent on reagents, but also saves time and sample.



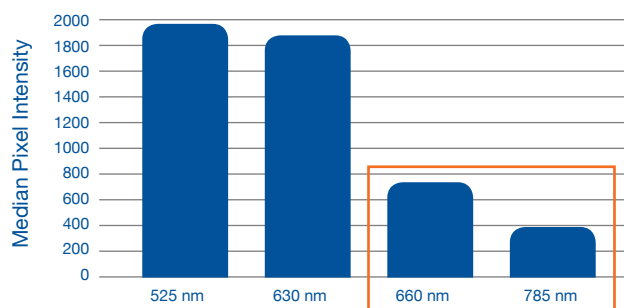
Simultaneous detection of EGFR and phospho-EGFR. Control cells (lane 1) and cells treated with EGF (lane 2) were imaged. EGFR was detected in the green channel (panel B), and phospho-EGFR was detected in the red channel (panel C). Panel A shows the green and red channels superimposed.



Why IR Fluorescent Westerns?

Increased Sensitivity Because of Reduced Membrane Autofluorescence at Infrared Compared to Visible Wavelengths

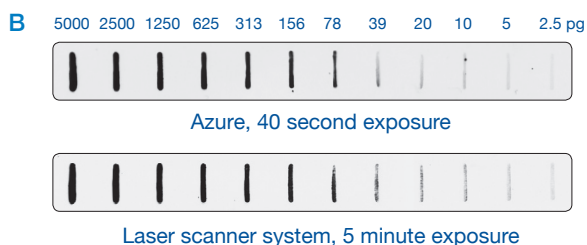
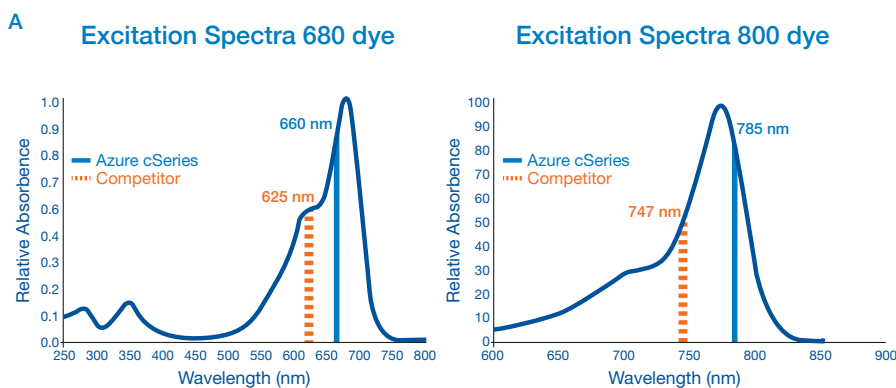
Nitrocellulose membranes were imaged using lasers with wavelengths at 660 nm and 785 nm. The same membranes were scanned for the same time at 525 nm and 630 nm wavelengths. Autofluorescence was much lower when using infrared wavelengths.



Why Choose the Azure c500 and c600 for IR Fluorescent Westerns?

Increased Sensitivity with Laser-excitation of IR Dyes

Other CCD based imaging systems use LEDs for excitation of IR dyes, but these LEDs typically do not match the dye excitation peak. Azure's cSeries use lasers carefully selected to match the excitation peaks of the dyes for more sensitive detection relative to other systems.

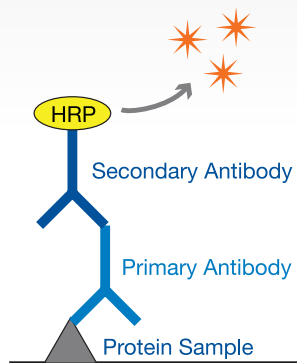


A) Azure's laser more closely matches the excitation maximum of IR 700 and 800 dyes.

B) Azure's performance matches that of the leading IR based laser scanner system.



Western Blotting with Chemiluminescence



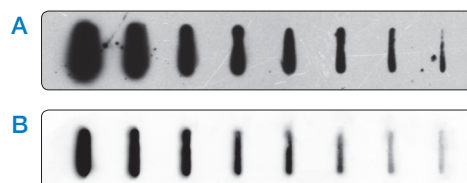
No Need to Change Your Protocol

Already using an HRP substrate? No matter what substrate you are using, the Azure cSeries systems are compatible with your current protocol. Instead of using film and a developer, simply place your blot in the cSeries to get great results.



No Need for a Darkroom

Get the sensitivity you trust from film, with the convenience of digital imaging. Using the high-resolution, deeply cooled camera of the Azure c300, 400, 500 or 600, and the 0.95 fast lens technology, you can capture images with the same sensitivity as film. The system acts as a darkbox. With digital image collection, data are immediately ready for analysis.

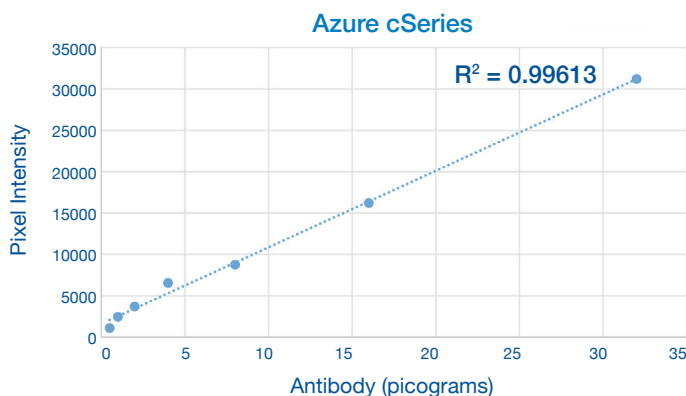


Two slot blots of serially diluted HRP-coupled secondary antibody

were prepared on nitrocellulose. Both blots were treated with a substrate and A) imaged on film for 2 minutes, or B) imaged on the Azure cSeries for 2 minutes at full resolution. Note the limited dynamic range and the saturated bands on film, making quantitation difficult.

Better Quantitation

The biggest advantage of switching to digital imaging is the ability to get more quantitative data from your Western blots. Film saturates quickly, making it impossible to quantify high-abundance bands. The Azure cSeries has a broad dynamic range that is coupled with sensitive detectors, allowing quantitation over several orders of magnitude of protein concentrations.



Azure cSeries gives a linear response to a serial dilution of an HRP-coupled antibody.



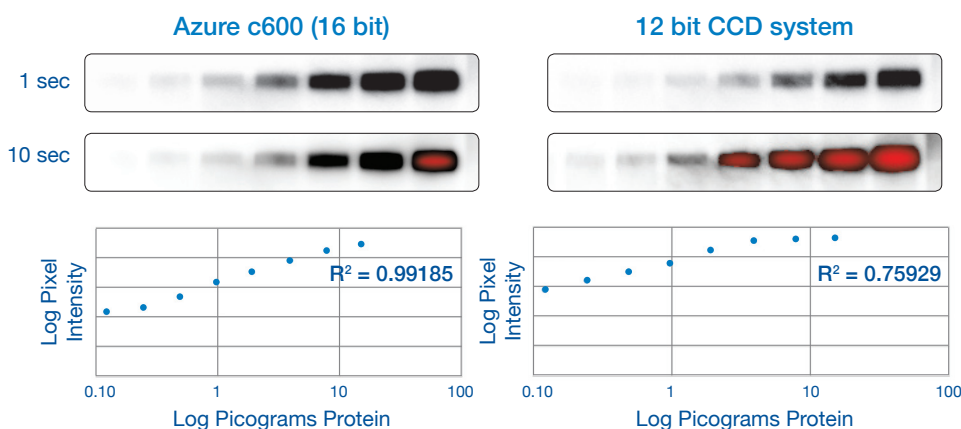
Azure c600



16 bit Imaging for a Wide Dynamic Range

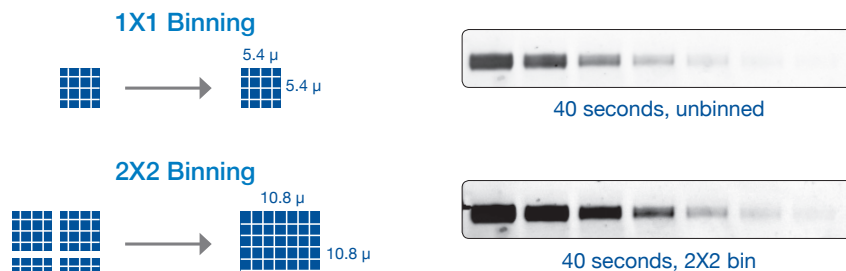
A Western blot was imaged on both the Azure c600 (a 16 bit system) and a competitive 12 bit system.

While the 10 second exposure appears similar on the different system, the 12 bit system produces an image that is saturated, and not suitable for analysis.



High Resolution Provides Faster Chemi Acquisition

A CCD camera has the ability to combine multiple pixels into a single larger pixel or “super pixel.” This is a technique known as binning. Binning of 1X1, means the full resolution of the camera is used to capture an image. A binning of 2X2 means that the areas of 4 adjacent pixels are combined into one larger pixel, and so on. In a 2X2 bin, the sensitivity to light is increased by 4 times due to the 4 pixel contributions. This is a powerful technique for chemiluminescent Western imaging. The Azure c300–C600 offers 5 levels of binning for optimal image acquisition.



**referenced from ccd.com



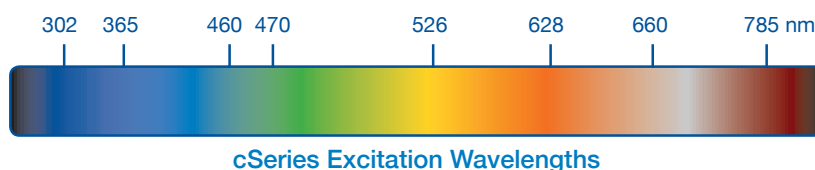
Flexibility for Your Applications

A Total Solution for Western Blot Imaging and Gel Documentation

The cSeries is a multichannel, multimodal imager, with IR, visible light, and UV excitation channels. Detect Cy dyes, Alexa dyes, Safe dyes, and more.

Light Sources

The flexibility of Azure's cSeries comes from the wide variety of light sources.



c600 • c400

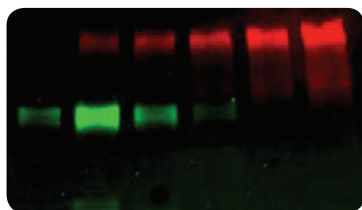
Visible Fluorescence Detection

The c400 and c600 have powerful LEDs compatible with Cy5, Cy3 and Cy2 or similar dyes.

Carry out multiplex blots detecting 2 or 3 different proteins using 2 or 3 different colors.

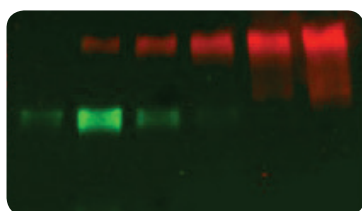
Cy5 and Cy3 Images

Azure



120 micron resolution,
less than 1 minute exposure time

Laser-Based System



200 micron resolution,
>5 minute exposure time



c600 • c500 • c400 • c300

“Safe” Dye Detection

An alternative to ethidium bromide, less-harmful ‘Safe’ dyes can be imaged with the EPI Blue LEDs standard in the system.

Blue Light Imaging

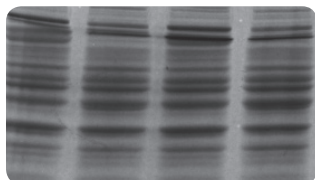


SYBR® Safe, SYBR® Gold,
SYBR® Green

Protein Analysis

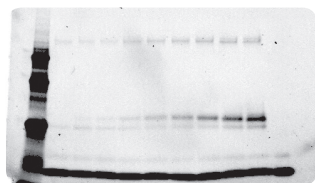
Protein gels stained with Coomassie blue or silver stain can easily be imaged using the visible light application.

White Light Imaging



Coomassie Blue, Silver Stain

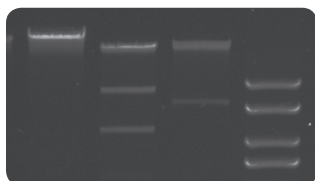
Stain-Free™



DNA Detection with Ethidium Bromide

With a dual-wavelength 302 nm and 365 nm UV transilluminator, images of ethidium bromide-stained DNA gels can be captured in a fraction of a second. An interlock switch prevents accidental exposure to UV. For band excision, the switch can be overridden with the press of a button, and the UV transilluminator can be pulled out.

UV Imaging



Ethidium Bromide

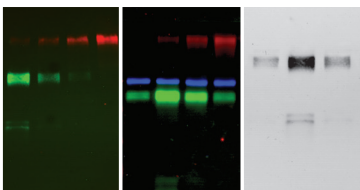
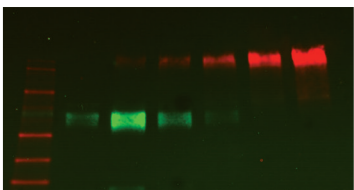
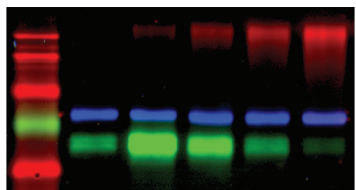
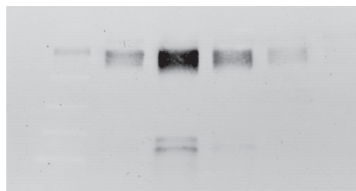
A Snapshot of Compatible Dyes*

Alexa Fluor® 488
Alexa Fluor 546
Alexa Fluor 555
Alexa Fluor 633
Alexa Fluor 647
Alexa Fluor 680
Chemiluminescence
Coomassie Blue
Coomassie® Fluor Orange
Cy®2
Cy3
Cy5
Deep Purple™
DyLight® 488
DyLight 550
DyLight 633
DyLight 650
DyLight 680
DyLight 755
DyLight 800
ECL Plex™
Ethidium Bromide
GelStar®
IRDye® 650
IRDye 680LT
IRDye 680RD
IRDye 700DX
IRDye 750
IRDye 800CW
IRDye 800RS
Qdot® 525
Qdot 565
Qdot 585
Qdot 605
Qdot 655
Qdot 705
Qdot 755
Silver Stain
SYBR® Green
SYBR Gold
SYBR Safe
SYPRO Orange
SYPRO Red
SYPRO Ruby
SYPRO Tangerine

*Other dyes are also possible.
Compatible dyes depend on
your system configuration.



Choose the system that suits your needs

c600	c500	c400	c300
Ultimate Western System <hr/> IR Fluorescence Visible Fluorescence Chemiluminescence UV Fluorescence Visible Imaging Blue Excited DNA Dyes <hr/>	Infrared Imaging System <hr/> IR Fluorescence Chemiluminescence UV Fluorescence Visible Imaging Blue Excited DNA Dyes <hr/> Upgradeable to c600	Visible Fluorescent Western System <hr/> Visible Fluorescence Chemiluminescence UV Fluorescence Visible Imaging Blue Excited DNA Dyes <hr/> Upgradeable to c600	Darkroom Eliminator <hr/> Chemiluminescence UV Fluorescence Visible Imaging Blue Excited DNA Dyes <hr/> Upgradeable to c600, c500, and c400
			

cSeries Specifications	c600	c500	c400	c300
Camera	8.3 MP			
Cooling	-50°C regulated cooling			
7 Position Filter Wheel	✓	✓	✓	✓
UV 302/365 nm	✓	✓	✓	✓
EPI Blue LED	✓	✓	✓	✓
Chemi	✓	✓	✓	✓
Visible Fluorescent Westerns	✓		✓	
NIR Westerns	✓	✓		
Field of View	20 x 15 cm			
Footprint (W x H x D)	38 x 55 x 36 cm			