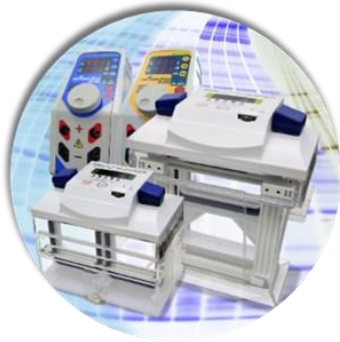
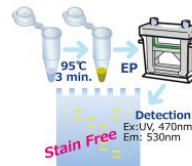


# ATTO Product catalogue

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Fractionation 2-D & Block Incubator & Agarose Gel Electrophoresis...5

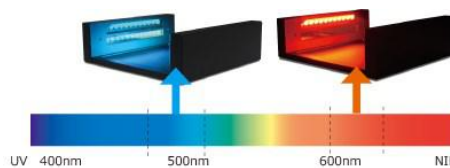
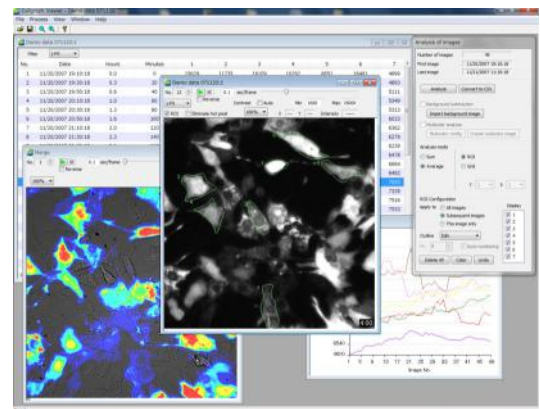


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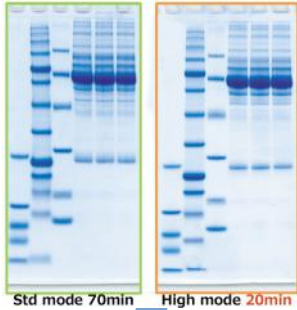
## ATTO Imaging System...9 p ~ 15 p



# Western Blotting Workflow with ATTO product

**Preparation**

**Electrophoresis**



**Blotting**

**Blocking & Antibody reaction**

**Detection**

**Stripping for reprobing**

**1 Protein Sample preparation Kit**

WSE-7420 EzRIPA Lysis Kit  
WSE-7421 EzSubcell Extract/ WSE-7422 EzSubcell Fraction

**2 SDS Sample preparation solution Kit**

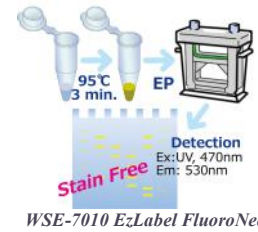
AE-1430 EzApply  
WSE-7010 EzLabel FluoroNeo

**3 Buffer for SDS-PAGE**

AE-1410 EzRun  
AE-1412 EzRun C+

**4 Protein molecular weight marker**

AE-1440 Ez Standard  
AE-1450 Ez Standard Prestain Blue



**Precast Gels**

e-PAGEL (ATTO mini size 8.5x9cm) : 5-20%, 10-20%, 7.5%, 10%, 15%...  
c-PAGEL (ATTO compact size 6x6cm) : 5-20%, 7.5%, 10%, 12.5%, 15%

**Vertical electrophoresis equipment**

AE-6530 / WSE-1100 / AE-6500 / AE-7350 / WSE-1020 / WSE-1500.....

**Power supplies**

AE-8135 / 8155, WSE-3200 / 3500



**5 Western Blotting solution Kit**

AE-1465 EzFastBlot

**Semidry Blotter**

WSE-4020 HorizeBLOT 2M-R  
WSE-4040 HorizeBLOT 4M-R  
WSE-4110 PoweredBLOT-One

**Power supplies**

AE-8135 , WSE-3200 / 3500

**PoweredBLOT-One HorizeBLOT 4M-R PowerStation**



**6 Blocking solution**

AE-1475 EzBlock Chemi  
AE-1476 EzBlock BSA  
AE-1477 EzBlock CAS

**EzBlock Chemi EzBlock BSA EzBlock CAS**



**7 Wash solution(TBS solution)**

WSE-7230 EzTBS

**8 Substrates for HRP**

WSE-7110 EzWestLumiOne  
WSE-7120 EzWestLumi plus  
AE-1490 EzWestBlue

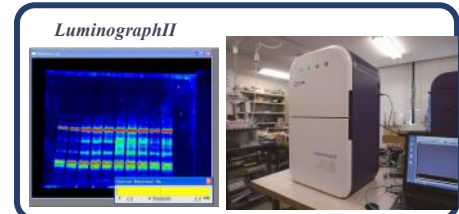
**EzWestLumi plus EzWestBlue**



**Cooled CCD Gel Imaging System**

**9 Stripping Reagent**

WSE-7240 EzReprobe



ATTO reagents bring you a better result and more convenient way in your experiments. Widely applicable and superior quality of reagents offer confidence and advanced application in your process. For western blotting, ATTO reagent supports all your process effectively in all steps.



Type	Use	Product Name
<b>1</b> <b>Protein Sample preparation Kit</b>	RIPA Lysis buffer Organelle fractionation & extraction Fractionation of Nuclei & Mitochondria Phosphate buffer saline solution SDS removal reagent Sample extraction, preparation for 2D Extract protein for Yeast & Bacteria	WSE-7420 EzRIPA Lysis kit WSE-7421 EzSubcell Extract WSE-7422 EzSubcell Fraction WSE-7430 EzPBS(-) AE-1390 SDS-eliminant AE-1435 EzApply2D Kit WSE-7423 EzbactYeast Crusher
<b>2</b> <b>SDS Sample Preparation solution Kit</b>	SDS sample preparation solution Kit Detectable in Stain free	AE-1430 EzApply WSE-7010 EzLabel FluoroNeo
<b>3</b> <b>Buffer for SDS-PAGE</b>	Tris-Glycine SDS buffer High isolation buffer Running buffer High-speed running buffer	AE-1410 EzRun AE-1412 EzRunC+ AE-1415 EzRun T AE-7065 EzRun MOPS
<b>Gel Buffer</b>	Buffer for making concentrated gel Buffer for making PAGE separated gel Buffer for making polyacrylamide gel	WSE-7155 EzGel Stack WSE-7150 EzGel Sep WSE-7310 EzGel Ace
<b>4</b> <b>Protein molecular weight marker</b>	Prestained Protein colored Marker	AE-1440 EzStandard AE-1440-2 EzStandard AE-1450 EzStandard prestainBlue WSE-7020 EzProtein Ladder
<b>5</b> <b>Western blotting solution kit</b>	3 liquid system for semi-dry blotting Methanol free, high-speed blotting High-Speed for semi-dry high polyper(200kDa<) protein Surfactant for addition like PBS,TBS Membrane cleaning solution	AE-1460 EzBlot AE-1465 EzFastBlot WSE-7210 EzFastBlot HMW  WSE-7235 EzTween WSE-7230 EzTBS
<b>6</b> <b>Blocking solution (Chemical reagent)</b>	NonProtein for western blotting BSA for western blotting Casein for western blotting	AE-1475 EzBlock Chemi AE-1476 EzBlock BSA AE-1477 EzBlock CAS
<b>7</b> <b>Wash solution</b>	Tris-Glycine buffer	WSE-7230 EzTBS
<b>8</b> <b>Luminescence Substrate for HRP</b>	Coloring substrate for HRP High-sensitive Luminescence Substrate for HRP High-sensitive Luminescence Substrate for HRP Luminescence Substrate for HRP	AE-1490 EzWestBlue WSE-7120S EzWestLumi plus 50mLx2 WSE-7120L EzWestLumi plus 250mlx2 WSE-7110 EzWestLumiOne
<b>9</b> <b>Stripping Reagent</b>	Western blot stripping buffer	WSE-7240 EzReprobe
<b>Electrophoresis for DNA</b>	Running buffer for DNA 10x Running buffer for DNA 50x	WSE-7130 EzFluoroStainDNA WSE-7040 EzApply DNA WSE-7051 EzRun TBE WSE-7050 EzRun TAE
<b>Gel Stain solution</b>	CBB(coomassie blue) Stain for Protein Negative Stain for Protein Silver for Protein & DNA	AE-1340 EzStain Aqua AE-1310 EzStain reverse AE-1360 EzStain silver
	EtBr removal column	WSE-7410 Ocolmun
	Centrifuge Tube filter device	AB-1171 ATTOPREP MF
<b>Luminometer Reagents</b>		
Super oxide(O <sub>2</sub> ) reaction	For Antioxidant Ability measurement	AB-2970 CLETA-S
Super oxide(O <sub>2</sub> ) reaction	Light Emitting reagent	AB-2950 MPEC
Menadion oxidation-reduction reaction	For Probiotic measurement	AB-2960 BactoLumix
Super oxide(O <sub>2</sub> ) reaction	Near Infrared light emitting reagent	AB-2980 NIR-CLA

# Precast Gels



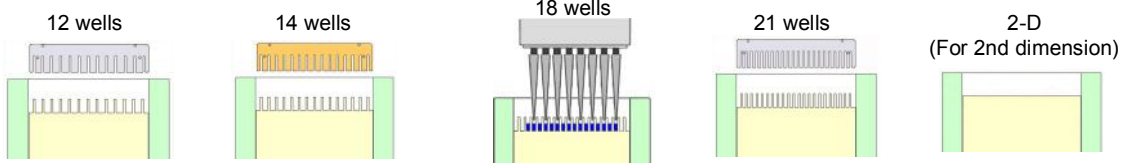
PAGEL  
c-Pagel, e-Pagel



AgarGEL

Gel size	c-Pagel		e-Pagel			Pagel	Gel concentration (%)	
	ATTO compact size		ATTO Mini-slab size			ATTO Mini-slab size		
Type (Code No.)	12 wells	2-D	14 wells	18 wells	2-D	12 wells		
	8 microL/well	No well	24 microL/well	15 microL/well	No well	28 microL/well		
	-	-	-	-	-	NPU-5L (2331192)		5
	C7.5L (2331610)	CD7.5L (2331680)	E-T7.5L (2331800)	E-R7.5L (2331700)	E-D7.5L (2331940)	NPU-7.5L (2331153)		7.5
	C10L (2331620)	CD10L (2331650)	E-T10L (2331810)	E-R10L (2331710)	E-D10L (2331910)	NPU-10L (2331145)		10
	C12.5L (2331630)	CD12.5L (2331660)	E-T12.5L (2331820)	E-R12.5L (2331720)	E-D12.5L (2331920)	NPU-12.5L (2331146)		12.5
	C15L (2331640)	-	E-T15L (2331850)	E-R15L (2331750)	-	NPU-15L (2331148)		15
	C15S (2331691)	-	E-T15S (2331860)	E-R15S (2331760)	-	-		15
	-	-	-	-	-	NPG-310L (2331194)		3 to 10
	C520L (2331600)	CD520L (2331670)	E-T520L (2331830)	E-R520L (2331730)	E-D520L (2331930)	NPG-520L (2331150)		5 to 20
	-	-	-	-	-	SPG-520L (2331120)		5 to 20
	-	-	E-T1020L (2331840)	E-R1020L (2331740)	-	NPG-1020L (23331122)		10 to 20

Well type



## Fraction Collector



### AC-5700 MicroCollector

Compact, intelligent fraction collector. Standardly 96 tubes (1mL) can be used, and optionally microplate (96/48/24/12), 3.5mL 48 tubes and 9mL 24 tubes are available. Fractionation can be controlled by time or drop counting, delay and standby time, the number of collection cycles.

## Block Incubator (Dry Bath Incubator)



### WSC-2610 MyMiniBLOCK

MyMiniBLOCK is a stable and accurate temperature controlled incubator, and microprocessor-controlled using advanced thermoelectric technology. With this technology, more stable and accurate up to 100°C temperature control is achieved. In compact body, very various use such as sample preparation of electrophoresis, DNA/RNA denature and reaction, trans-information of E. coli, etc. can be applied.



### WSC-2620 PowerBLOCK

PowerBLOCK is able to reach set-temperature in mins. It can reach to the target temperature in about 7min, you can easily use it with different temperature just after using with previously set temperature. Wide and stably accurate temperature setting is from -10 to 100°C. It can be used for very wide applications and used in different temperature settings continuously.



### WSC-2630 PowerBLOCK Shaker

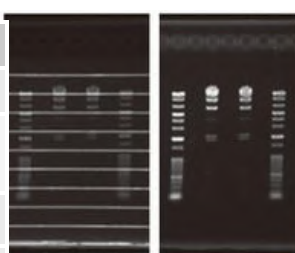
PowerBLOCK Shaker is all-in-one high specification shaking incubator. It is available to mix samples while incubating, and setting temperature is from 0 to 100°C. No need cooled or thermostatic room or additional chambers. While using it as conventional block incubator, it is also compatible for more specific application such as Immunoprecipitation assay, ELISA, Bid purification of DNA/RNA that requires mixing while reaction.

## Agarose Gel Electrophoresis System

### WSE-1710 Submerge-Mini

Submerged, horizontal agarose gel electrophoresis is one of the primary tools for molecular biology, as an easy, economic and efficient technique for separation of nucleic acids as well as analysis of PCR-amplified fragments. UV transparent gel tray for ease of gel viewing. Comb teeth designed to provide sharp band. Voltage setting of integrated power supply is changeable to 50V, 100V and 150V by simple operation.

<b>Model</b>	<b>WSE-1710</b>
<b>Input power</b>	AC100-120V 1A
<b>Output voltage</b>	DC50V , DC100V, DC150V
<b>Timing</b>	0 ~ 99min
<b>Comb Specs</b>	3mm×1mm×22/5.6mm×1mm×12 3mm×1mm×18/5.6mm×1mm×10
<b>Gel tray Specs</b>	110mm×60mm and 54mm×60mm



With gel tray Without gel tray



### AE-6100/6111 Submerged agarose gel electrophoresis

	<b>AE-6100</b>	<b>AE-6111</b>
<b>Gel size (W x L)</b>	80x100 mm	120 x160mm
<b>Sample Comb</b>	10 wells	26/13 wells (double) (well width 3/6 mm)
<b>Buffer</b>	300 to 500 mL	700 to 1200 mL

Buffer recirculation ports to afford recirculation of cooling of buffer to avoid interference in separation

## ATTO Compact Gel Size chambers

**NEW**



### WSE-1010 CompactPAGE Ace

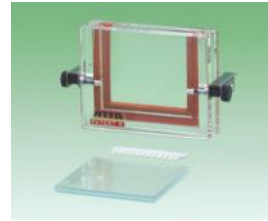
Compact-size PAGE system including a power supply. The apparatus body are very compact and easy-to-handle.

The gel size: 60mm x 60mm x 1 gels

Buffer volume: 90mL

Electrophoresis time: 30 minutes.

Set a High mode⇒10-15min electrophoresis time.

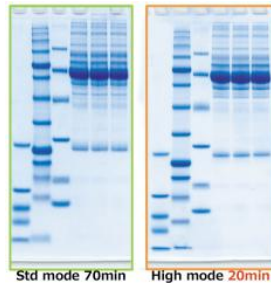


### AE-7310 Compact Gel Caster

Gels can be easily prepared in the box-shaped main unit. 0.75 mm Compact Multi Gel Cast Including 2 pairs of glass plates, 2 combs, 3 divider plate, and 1 dummy plate. Ready to cast 2 12-well gels



WSE-1025 CompactPAGE Ace(Twin-R)



### WSE-7310 EzGelAce (white bottle)

Buffer for making polyacrylamide gel

### WSE-7065 EzRunMOPS (Black bottle)

High-Speed running buffer

Use these buffer that support to make shorter electrophoresis time.

**NEW**

## ATTO Mini Gel Size chambers



### WSE-1150 PageRunAce

A mini PAGE system with a built-in power supply. High resolution separation of protein and nucleic acid.

Set a High mode⇒20-25min electrophoresis time.

Gel size: 90 x 80 x 1mm x 2 gels

Buffer volume: 500mL

**BEST SELLER**

### AE-6500 Dual

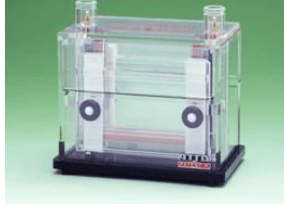
### Mini Chamber

#### Chamber

High resolution separation of protein and nucleic acid. Minimized smiling with efficient heat dissipation.

Gel size: 90 x 80 x 1mm x 2 gels

Buffer volume: 340mL



### AE-6530 miniPAGE chamber

High resolution separation of protein and nucleic acid. Minimized smiling with efficient heat dissipation.

Gel size: 90 x 80 x 1mm x 2 gels

Buffer volume: 500mL

### Dual Mini Gel Cast

Gels can be easily prepared with a special seal gasket and clips. 2 pairs of glass plates, 2 gaskets, 4 clips, and 2 combs. Ready to cast two 1-mm or 0.75-mm 12-well gels.



## ATTO Large Gel Size chambers



### AE-6220 Dual Slab Chamber

High resolution separation with simple operation.

Gel size: 138(W) x 130(H) mm x 2 gels

Gel thickness: 0.5 - 2.0 mm

Buffer volume: 930mL



### AE-6210 Slab Gel Cast

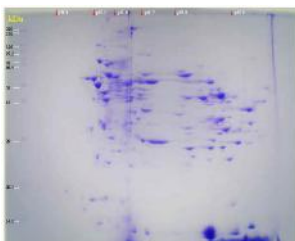
Easy gel preparation with specially designed parts and seal gaskets. Including a pair of glass plates, a gasket, and a comb, ready to cast a 1 or 2 mm, 12-well gel.

## 2D-Gel Electrophoresis System



### WSE-1500 DiscGel EP(DiscRun-R)

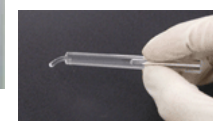
A mini PAGE system with a built-in power supply. agarGEL precast gel and a high level of reproducibility can be obtained 150-210 min. Simplified routines for ensured reliable operation.



Electrophoresis pattern of Rat liver

### AgarGEL

1-D precast gels for isoelectric focusing (IEF) and protein 2-D gel electrophoresis. Individual proteins are separated by isoelectric point (pI).



**GOOD SELLER**

## Semi-dry Blotting System



### WSE-4020 HorizeBLOT 2M-R

Fast and efficient semi-dry blotting apparatus.  
2 mini gels are available simultaneously.  
Size of electrode: 205 x 100mm



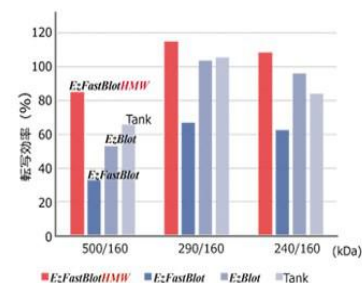
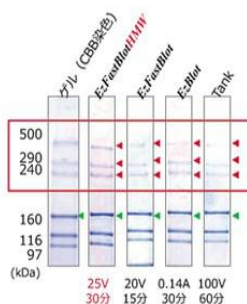
### WSE-4040 HorizeBLOT 4M-R

Fast and efficient semi-dry blotting apparatus.  
4 mini gels are available simultaneously.  
Size of electrode: 205 x 200mm



### WSE-4110 PoweredBLOT-One

PoweredBLOT One is semi-dry blotting system with a built-in power supply.  
Size of electrode: 95 x 98mm



### AE-1465 EzFastBlot

Fast electrophoretic transfer (blots protein onto membrane in 5 to 15 minutes)



### WSE-7210 EzFastBlot HMW

High molecular (more than 200kDa) 15~30min blotting finished.  
One bottle type 500ml (x5: 2.5L)  
About 25 times to use.  
Do not use Methanol, surface-active agent and acid.

3 liquid system for semi-dry blotting  
Methanol free, high-speed blotting  
High-Speed for semi-dry high polyper(200kDa<) protein  
Surfactant for addition like PBS, TBS  
Membrane cleaning solution

AE-1460 EzBlot  
AE-1465 EzFastBlot  
WSE-7210 EzFastBlot HMW  
WSE-7235 EzTween  
WSE-7230 EzTBS

## Power Supply



### AE-8135 myPowerII 300

Small, compact power supply  
1 - 300 VDC in 1V steps  
1 - 400 mA in 1 mA steps  
Automatic crossover  
Max output: 50 W  
Timer function with alarm  
Size: 74x170x170mm



### AE-8155 myPowerII 500

Small, compact power supply  
1 - 500 VDC in 1V steps  
1 - 200 mA in 1 mA steps  
Automatic crossover  
Max output: 25W  
Timer function with alarm  
Size: 74x170x170mm



### WSE-3200 PowerStation III

Constant voltage, current or wattage with automatic crossover  
10-1000V in 1 V steps  
1 - 500 mA in 1 mA steps  
1 - 200 W in 1 W steps  
Various protection for safety & blackout  
23 preset, 21 free set and 10 chain files  
Timer and alarm function



### WSE-3500 PowerStation HC

Large current output setting, automatic crossover  
10 -150 V in 1 V steps  
0.01 - 3.00 A in 10 mA steps  
1 - 200 W in 1 W steps  
Various protection for safety & blackout  
30 preset, 21 free set and 10 chain files  
Timer and alarm function

## WSC-2400 SeesawShaker atto



Purpose for  
Dyeing of electrophoresis gel and dyeing of blotting membrane, decoloration, reaction.

General Purpose

Cultivation, a mix, abstraction and shacking variously.

Metronome Style shacking, Swing back and forth ⇒ there are No spotted.

Shaking Size: 300mm(W)x200mm(D) ATTO Mini-gel 6pcs

Unit Size: 303mm(W) x 205mm(D) x 165.2mm(H) 4.7kg

Power: AC100~120V 50/60Hz

Weight: 3.0kg

## Peristaltic pump / Related product



### SJ-1211II-H Perista Pump

High Flow Rate  
Single-Channel  
Flow rate: 7 - 700 mL/h  
20:1 flow rate variation



### SJ-1211II-L Perista Pump

Single or up to 4 Channels External Controllable  
Low Flow Rate  
Flow rate: 0.7 - 100 mL/h  
30:1 flow rate variation



### AC-2120 Precision Perista Pump

Single channel  
0.1 to 1000 ml/h  
1000:1 flow rate control



### AC-2110II Perista Pump

Single or up to 4 Channels External Controllable  
Flow rate: 5 - 1500 mL/h  
45:1 flow rate variation  
AC100~240V 50/60Hz



### AC-9505 Gradient Mixer

A mixing unit incorporating a 3-way solenoid valve.  
110V/230V  
73x71x166mm



Gradicon III One Pump Set



# ***ATTO Imaging System***

***Fluorescence imaging system***

***Chemiluminescence imaging system***

***Bioluminescence Imaging system***

***Luminometer***

***Spectrometer***

**Gel Documentation Systems...10**



**Chemiluminescence imaging system...11**



**Microplate / Single tube Luminometer...12**



**Real-time reporter Assay System...13**



**Bioluminescence Live-Cell Imaging system...14**



**Ultrahigh sensitive spectrophotometer...15**  
**LED light sources**  
**CyanRed Epi / Varirays**



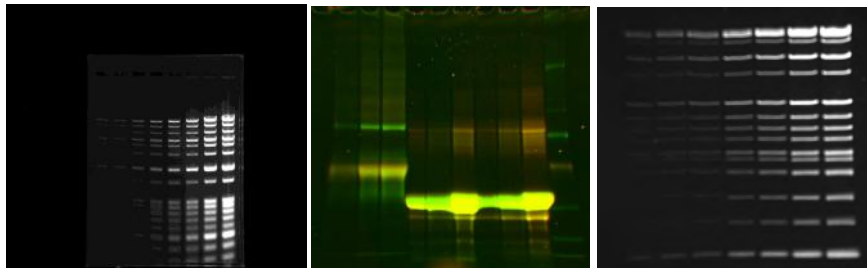
# INDUSTRY FIRST!! UV FREE

**WSE-5200** is designed a Touch screen control panel type 2Mega pixel Gel Documentation System.

Auto focus function, Available Wi-Fi control, USB memory or main unit, Saturation display, USB connect with digital printer, Safety system for UV light etc.

**5200CR model for free any hazards from UV and nucleic acid stabilization.**

**Simple & Easy!! Touch Panel operation**



EtBr stain gel  
(UV)

WSE-7010  
EzLabel FluoroNeo  
Pro-Q Diamond  
Merge image

SYBR Safe stain gel  
(Blue LED)



100units sold/year

Nucleic Stabilization

Free from Any hazard

[CyanRed Epi] is detecting on center

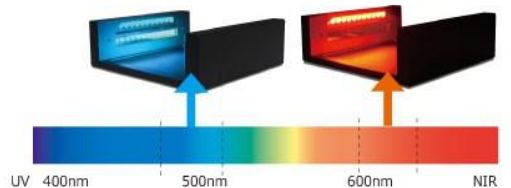
wavelength between 510nm Cyan and 623nm Red. CyanRed Epi is Applied Epi type for low background. CyanLED is detect much higher resolution fluorescence than BlueLED. Moreover, it may detect GreenLED wavelength with low background high resolution.

Red LED is detect Cy5 or Alexa647 etc.

(665nm Filter is needed as option)

CyanRed Epi: Pick 510nm (470~520nm)

SYBR Green/Safe/Gold, Midorigreen,



Product Number	WSE-5200UV	WSE-5200CR UV Free
Product Name	Printgraph 2M	
Camera	Monochrome CCD camera	
Resolution	1600 × 1200	
Pixel size	4.65 μm×4.65 μm	
Pixel density (Greyscale)	12 bit (4096 levels)	
Lens	6× zoom lens	
Monitor	8 inch LCD Touch screen	
Filter	6 positions, motorized (Primary; 595 nm)	6 positions, motorized (Primary; 595nm) 665nm:Option
Maximum Image Area	200×160 mm	
Data Saving	16 bit TIFF, 8 bit TIFF, BMP, JPEG	
shutter speed	5 msec-10 sec	
Epi-white LED	Yes	
CyanRed Epi LED Light source	-	Yes
UV light source	Yes	-
Printer	Option (SONY UP-X898MD)	Option (SONY UP-X898MD)
White light source LED plate	Yes	Yes
Wireless LAN	IEEE802.11b/g/n	
Interface	USB : 2 ports /LAN : 1 port	
Dimension	305(W)×615(H)×430(D)	305(W)×615(H)×430(D)

## Chemiluminescence Imaging System **WSC-6100 Luminograph**

### EzWestLumi Plus

Chemiluminescent substrate for HRP



**F0.95 Lens**



High Performance Megapixel Cooled CCD Camera. Applicable for Western blotting, Northern blotting and Southern blotting.

Fluorescent imaging of fluorescent staining gels and fluorescent proteins (OPTIONAL).

→Quantitative analysis of samples from an image (concentration and molecular weight)

→Merge image of chemiluminescent image and prestained marker of membrane image.

WSE-6100H 1.4 mega pixels, -30°C CCD camera, F0.95 high sensitive lens.

WSE-6100Z 1.4 mega pixels, -30°C CCD camera, F1.2 Zoom lens.

## Chemiluminescence Imaging System **WSC-6200 LuminographII**



**INDUSTRY FIRST!!  
F0.8 Lens**

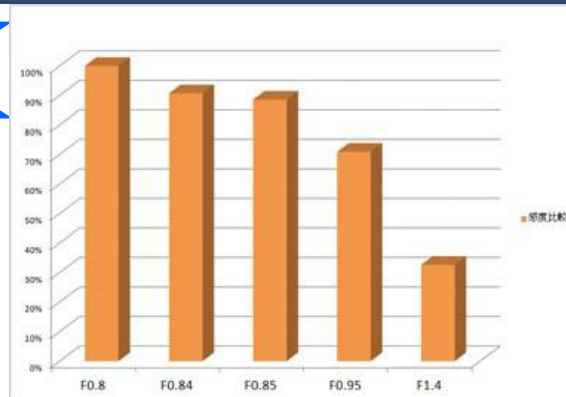


More wider detecting size than Luminograph. Max 260x200mm

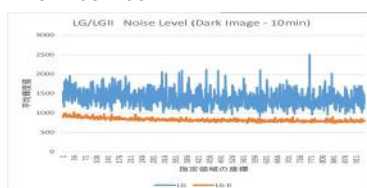
Adopted F0.8 industry first!

Pixels: 1740 x 1300 2M pixels

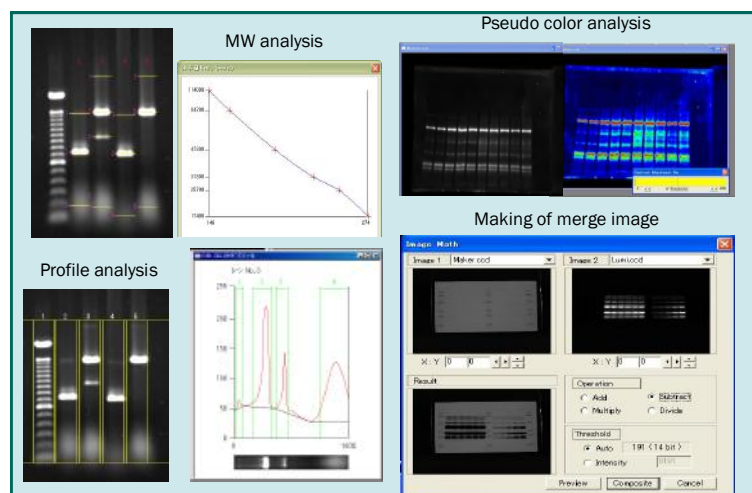
-40°C Cooled CCD Camera



**Lens comparison**



## CS Analyzer 4 Image analysis software



### CS Analyzer 4 for Windows

**CS Analyzer 4 is a versatile image analysis software for electrophoresis patterns.** This software can be used not only in combination with ATTO Gel documentation systems and Luminograph imaging system, but also with a variety of images of other sources i.e. an image scanner, networks. It can handle various formats of images including 8 bit TIFF/BMP/JPEG or 16 bit TIFF, etc. and provides densitometry measurement of zone/area/spot, normalization of distorted images, image conversion, etc. CS Analyzer4 is included in Luminograph and LuminographII system.

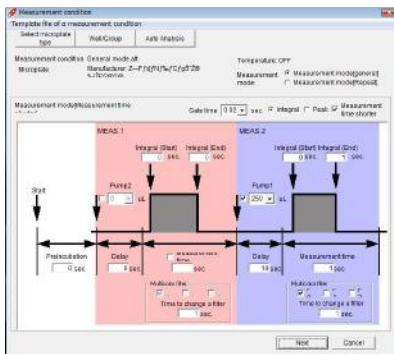
# Microplate Luminometer **AB-2350 Phelios**



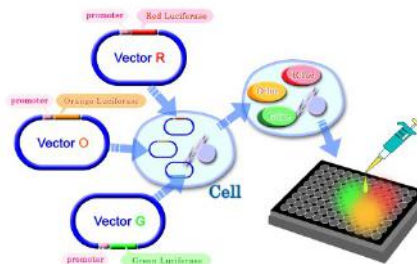
### Specification

Detector: Photomultiplier Tube  
 96 / 384 well plate format  
 Spectral range: 350 to 670 nm  
 High sensitivity:  $10^{-21}$  moles luciferase,  $10^{-18}$  moles ATP  
 Repeat function: 0.1 to 60sec/well, Max 168 hours or 1000times  
 One or Two Injectors: 20 to 250uL  
 Heater temperature range: Room Temp +5 to 40 degreeC

**Phelios is a 384/96 microplate luminometer with a multi-color filter system, which enables multi-reporter gene assay using different colors luminescence generating luciferases.** Phelios also would offer a wide range of application including ATP assay, ELISA, superoxide detection, and estimation of anti-oxidative activity, etc. in cell biology, physiology, microbiology, food sanitation, environmental assessment, etc.



### Multi-Colored Luciferase Assay



Three kinds of luciferase are synthesized in proportion to the amount of the transcriptional activity of introduced promoter 1 to 3.

One kind of luminescence substrate is added to three kinds of luciferase. The intensity of each color luminescence proportional to the amount of transcriptional activity of the introduced promoter 1 to 3 measured by color separation.

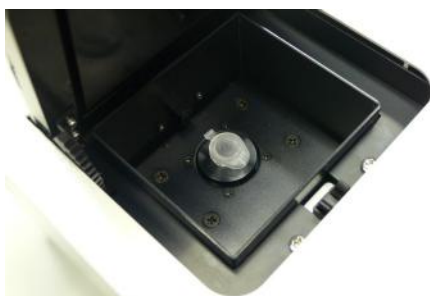
# Single tube Luminometer **AB-2270 Luminescencer Octa**

### Specification

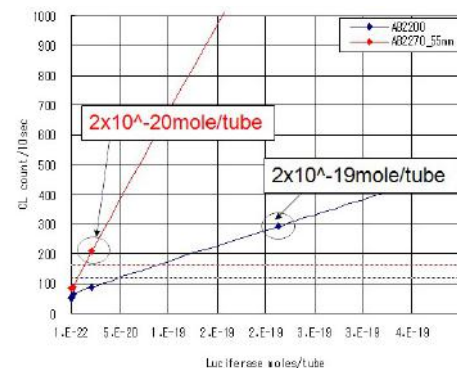
Detector: Photomultiplier Tube  
 Spectral range: 350 to 670 nm  
 High sensitivity:  $10^{-21}$  moles luciferase,  $10^{-18}$  moles ATP  
 Built-in plunger type injectors: 25 to 300uL  
 Time: 1-2000 sec (1-600 sec for multicolor assay)



**A single-tube type personal luminometer equipped with a multicolor detection system. A compact body houses a printer and an injection pump.** Easy to operate and applicable to various types of analysis such as ATP assay, measurement of superoxide, antioxidative activity, chemiluminescent enzyme immunoassay, luciferase assay including multi-reporter gene assay using multiple-color luminescence reagents, etc.



1.5mL micro tubes &  $\Phi$ 12 x 55mm test tube



# Real-time Reporter Assay System **AB-2550 Kronos Dio**



## Specification

- Measurement Container :** 35mm dish
- Number of Samples:** 8 dishes Max.
- Temperature:** Peltier device and air circulation room temperature -5°C to 45°C
- CO<sub>2</sub> Gas:** 5% in density.  
Control with sensor and regulator
- Detector:** Photomultiplier Tube
- Measurement Method:** Photon counting
- Wave length:** 350nm to 670nm
- Time:** 1 to 60sec / from 1 to 60 min
- Filters:** F0 (none), F1 (560nm), F2 (620nm)

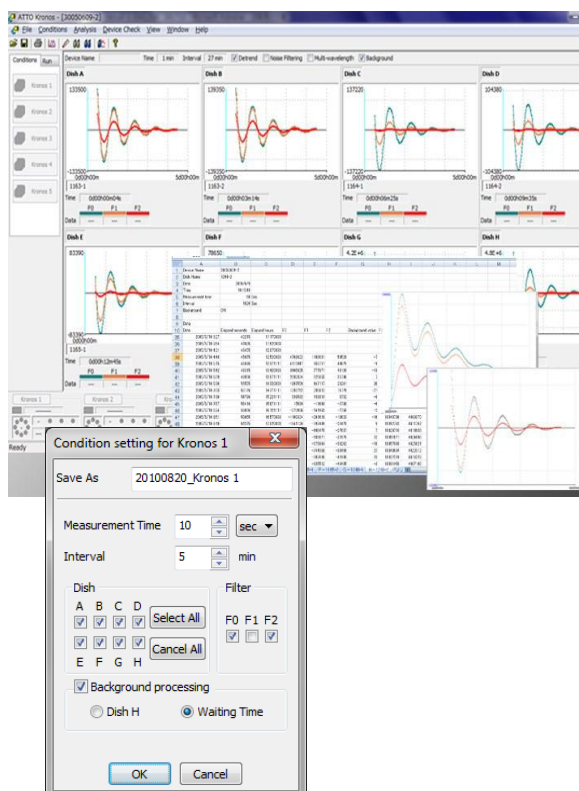


**AB-2550 Kronos dio is luminometer equipped PMT (Photomultiplier Tube) as a detector, and it is suitable for real time monitoring of gene expression in living cell and tissue culture samples over a long period (“real time reporter assay”).** Sample container is a 35mm culture dish and up to 8 dishes can be applicable.

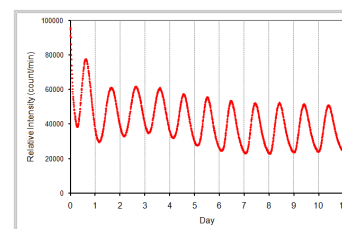
Long period cultivation under observation can be kept very stably by complete environment (temperature, CO<sub>2</sub> gas and humidity control) with compact built-in incubator.

Besides, because an optical filters are built in, it is possible to monitor up to three kinds of gene expression using different luciferases generating different colors luminescence.

Representative applications are Real-time Reporter Assay of living cells and Tissue section, Simultaneous monitoring of multiple circadian gene expression, Analysis of RNA expression & Protein transport, Drug stimulation response, Time-dependent profiles of transfection efficiency, Analysis of apoptosis, etc.



A transgenic mouse including luciferase gene with a promoter of clock gene (*Per 1*) related to circadian rhythm was added with luciferase gene was kept with the period from 06:00 hrs to 18:00 hrs as the light period, and its suprachiasmatic nucleus (SCN) was cut into 300  $\mu$ m slices using a micro slicer and the slices were placed on culture inserts (Millicell CM) and monitored for 11 days. Extremely stable circadian rhythm was detected.



Data Supported: Dr. Ken-ichi Honma  
Dept. of physiology, Hokkaido University Graduate School of Medicine.

Reference: Shin-ya Nishide , Sato Honma , Yoshihiro Nakajima , Masaaki Ikeda , Kenichi Baba, Yoshihiro Ohmiya and Ken-ichi Honma (2006) New reporter system for *per1* and *Bmal1* expressions revealed self-sustained circadian rhythms in peripheral tissues. *Gene to Cells*, 11, 1173-1182

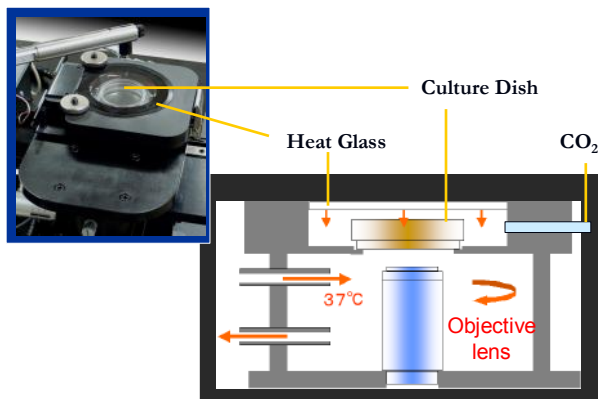
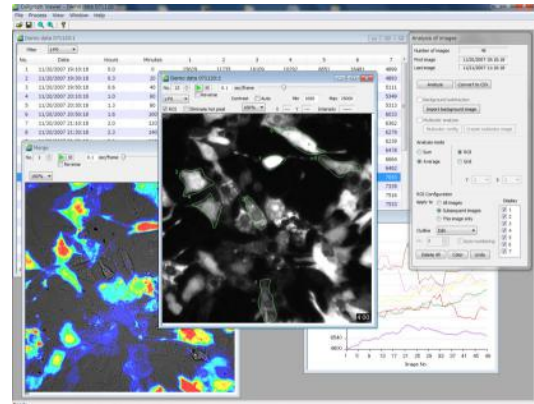


## Specification

- Detector:** Back-illuminated EM CCD (-80°C)  
Down to -90°C (water cooling, optional)
- Pixels:** 512 × 512
- Objective lens:** ×4, (optional ×10, 20, 40, 60)
- Stage :** X-Y-Z axis : Manual  
Z axis : Motorized (external control)
- Sample container :** 35mm dish
- Temperature:** room temperature +5°C to 45°C
- CO<sub>2</sub> (option):** Humidifying Unit, CO<sub>2</sub> gas mixer
- Lighting:** White LED for bright field image  
Blue LED for GFP excitation
- Filter:** 525(GFP), 560, 620 nm long pass filter
- Imaging modes:** Live/Interval/Stage control/  
Combination/Background
- Filter Switch:** Automatic control of set filter
- Exposure time:** 30 msec to 90 minutes

**Cellgraph is an imaging system designed to detect extremely weak bioluminescent signals from a single cell. In combination with luciferase markers, Cellgraph can visualize the cell dynamics - time dependent changes of transcriptional activities in individual cells and localization to inner cell components (organelles).**

Cellgraph provides a variety of advanced features to support live-cell studies; The ultrasensitive cooled and back-illuminated EMCCD (Electron Multiplying CCD) offers single photon sensitivity, certified with a patented procedure to measure total luminescence intensity as photon counts. The incubation system enables long-term culture under controlled temperature and 5% carbon dioxide gas circulation. The multicolor detection system is equipped for multi reporter assay with up to 2 different color filters(560LP, 620LP), which enhances sensitivity to extra weak bioluminescence and gives an internal standard basis.



The temperature of the 35 mm culture dish can be kept constant at 37 degrees. The capability to continue the culture for an extended period is also made possible because there is an introduction port for CO<sub>2</sub>.

\*CO<sub>2</sub> gas injection unit is optional accessory.

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- H. Kwon, T. Enomoto, M. Shimogawara, K. Yasuda, Y. Nakajima and Y. Ohmiya, Bioluminescence imaging of dual gene expression at the single-cell level. *Biotechniques*, 48(6), 460-462 (2010)
- X. Li, Y. Nakajima, K. Niwa, V.R. Viviani and Y. Ohmiya, Enhanced red-emitting railroad worm luciferase for bioassays and bioimaging. *Protein Sci.*, 19, 26-33 (2010)
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- H. Kwon, Y. Ohmiya, K. Honma, S. Honma, T. Nagai, K. Saito and K. Yasuda, Synchronized ATP oscillations have a critical role in prechondrogenic condensation during chondrogenesis. *Cell Death Disease*, 3, e278 (2012)

# Ultrahigh sensitive spectrophotometer *AB-1850 LumiFLspectrocapture*



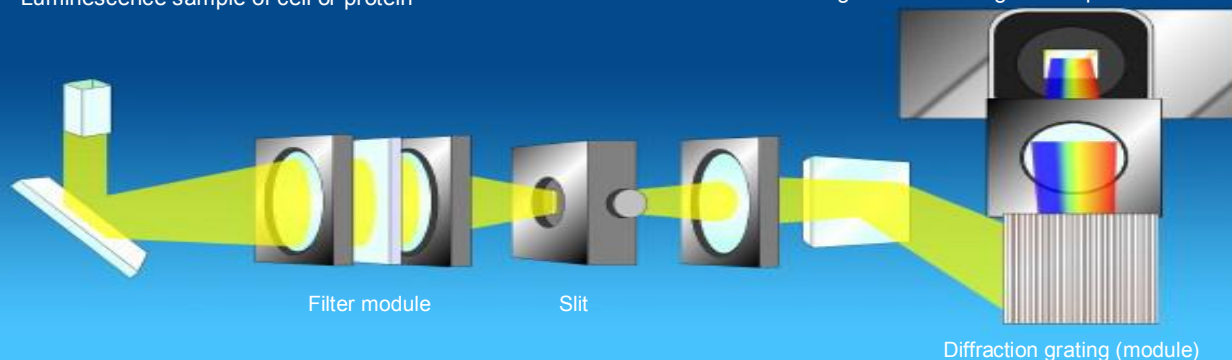
## Specification

Measurement wavelength: 400 to 800nm  
 Wavelength resolution: 1.8nm  
 Reciprocal linear dispersion: 60nm/mm  
 Slit width: 0.01mm - 5mm (11 steps)  
 Exposure time: 1/30sec. - 60min  
 Repeatability  $\pm 0.6$ nm  
 Light receiving part: Electronic cooled CCD

**A high-spec spectrometer equipped with thermoelectrically cooled CCD to measure luminescence and fluorescence spectra over whole wavelength range simultaneously.** LumiFLspectrocapture can detect ultra low intensity light and can be used in studying fluorescence resonance energy transfer (FRET) and bioluminescence resonance energy transfer (BRET).

■ Sample cell: Quartz cell or PCR tube  
 Luminescence sample of cell or protein

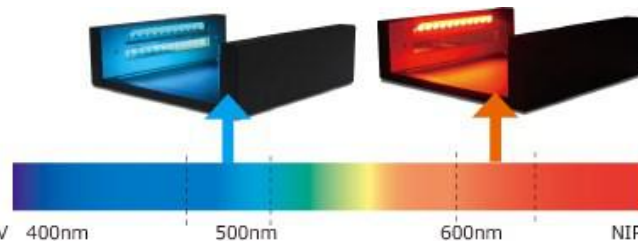
■ Detection module: CCD  
 All wavelength - enable long time exposure



## CyanRed Epi & CyanoView & VariRays

### CyanRed Epi for WSE-5200 Printgraph2M

Red LED is detect Cy5 or Alexa647 etc. (665nm Filter is option)  
 CyanRed Epi: Pick 510nm (470~520nm)  
 SYBR Green/Safe/Gold, Midorigreen, GelGreen, EtBr, SYPRO Ruby/Orange, Fluorescein (FITC), Flamingo Gel Stain, Pro-Q Diamond, Cy3, REP (Red Fluorescent Protein)

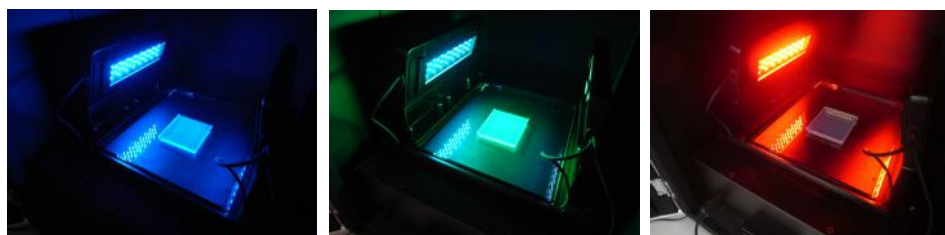


### CyanoView for WSE-6100 Luminograph & WSE-6200LuminographII

CyanRed Epi: Pick 510nm (470~510nm)  
 SYBR Green/Safe/Gold, Midorigreen, GelGreen, EtBr, SYPRO Ruby/Orange, Fluorescein (FITC), Flamingo Gel Stain, Pro-Q Diamond, Cy3, REP (Red Fluorescent Protein)

### VariRays for WSE-6100 Luminograph & WSE-6200 LuminographII

3 colors diode(LED) light Epi type for fluorescence. Switchable 3 colors on blue(470nm) , green(527nm) and red(630nm) in one unit. VariRays is able to light on 3 colors together as well. Detecting a fluorescence that Protein, Nucleic acid and GFP.



**Fourth Edition in JAN 2015 by ATTO Corp.**

$0.1=10^{-1}$	deci	d	one tenth of
$0.01=10^{-2}$	centi	c	one hundredth of
$0.001=10^{-3}$	milli	m	one thousandth of
$0.000\ 001=10^{-6}$	micro	$\mu$	one millionth of
$0.000\ 000\ 001=10^{-9}$	nano	n	one billionth of
$0.000\ 000\ 000\ 001=10^{-12}$	pico	p	one trillionth of
$0.000\ 000\ 000\ 000\ 001=10^{-15}$	femto	f	one quadrillionth of
$0.000\ 000\ 000\ 000\ 000\ 001=10^{-18}$	<b>ATTO</b>	a	one quintillionth of

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