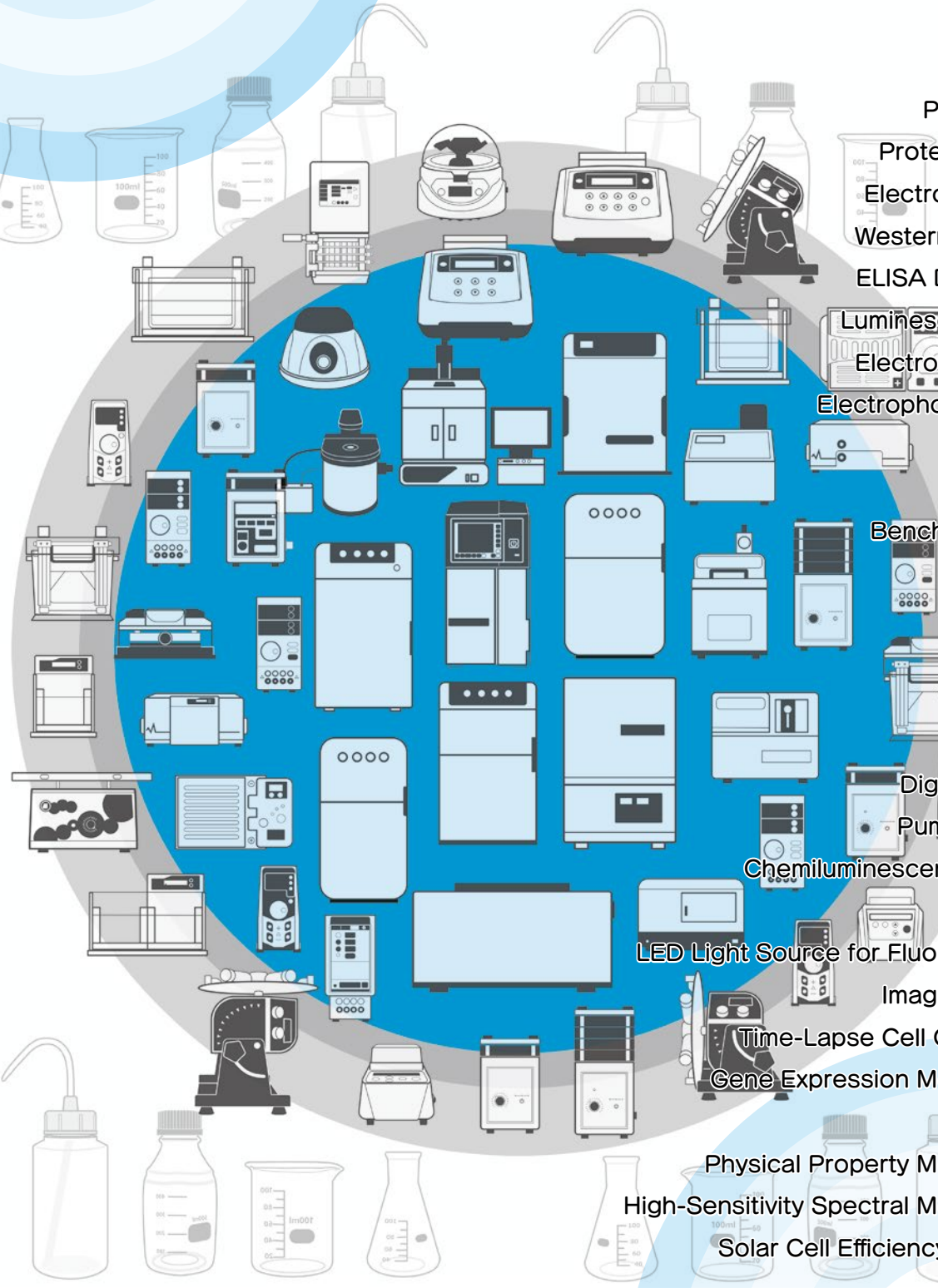
PRODUCT CATALOG 2026



Precast Gel
Protein Extraction Kit
Protein Quantification Kit
Electrophoresis Reagents
Western Blotting Reagents
ELISA Detection Reagents
Luminescence Detection Kit
Electrophoresis Apparatus
Electrophoresis Power Supply
Blotting Apparatus
Block Incubator
Benchtop Mini Centrifuge
Vortex Mixer
Rotary Mixer
Seesaw Shaker
Gel Drying Cabinet
Peristaltic Pump
Digital Peristaltic Pump
Pump Control Software
Chemiluminescence Imaging System
Gel Imaging System
LED Light Source for Fluorescence Excitation
Image Analysis Software
Time-Lapse Cell Observation System
Gene Expression Measurement System
Plate Reader
Physical Property Measurement System
High-Sensitivity Spectral Measurement System
Solar Cell Efficiency Evaluation System

ATTO
SupportingLifeResearch

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Categorization by color bar

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The Meaning Behind the Company Name “ATTO”

In 1978, our company changed its name from Mitsumi Kagaku Sangyo Co., Ltd. to ATTO Co., Ltd. The origin of the company name reflects our goal at the time: to create analytical instruments with sensitivity at the “a g/a mol” level, which was difficult to achieve then. The unit table printed on our catalogs and products is used as a logo representing ATTO's manufacturing objectives.

Today, we conduct research and development aimed at creating ultra-high-sensitivity analytical instruments capable of analyzing molecules at the zepto (zepto/z) and yocto (yocto/y) levels.

This catalog introduces the various products developed by ATTO Corporation, intended to be of use to researchers.

$0.1=10^{-1}$	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	μ	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
$0.000\ 000\ 000\ 000\ 000\ 001=10^{-18}$	ATTO	a	one	quintillionth of

Precast Gel Lineup

Size Chart

page	category	series	Gel size	Plate size	Well width	Additive amount	Quantity per box
15 16 17 18	mini-slab	**u-PAGEL H** **p-PAGEL** **e-PAGEL HR** **e-PAGEL**	W : 90mm H : 88mm T : 1mm	W : 120mm H : 100mm Total : 5mm	4.2mm / 14 well 2.9mm / 18 well	24 µL / 14 well 18 µL / 18 well	10 gels
19 19	compact-slab	**c-PAGEL Neo** **cp-PAGEL Neo**	W : 60mm H : 62mm T : 1mm	W : 76mm H : 70mm Total : 5mm	2mm / 15 well	9 µL	10 gels
20	wide-slab	**m-PAGEL**	W : 140mm H : 88mm T : 1mm	W : 160mm H : 100mm Total : 5mm	3mm / 30 well	20 µL	6 gels
21	1D-IEF	**agarGEL** for mini-slab	Φ : 2.5mm L : 75mm	Φ : 7mm L : 100mm	1 sample	max 300 µg	10 gels
21	2D-PAGE	**e-PAGEL** for 2D mini-slab	W : 90mm H : 88mm T : 1mm	W : 120mm H : 100mm Total : 5mm	well less	agarGEL	10 gels

Precast Gels　Compatible Electrophoresis Chamber List

page	series	Electrophoresis Chamber	discontinued products
15 16 17 18	**u-PAGEL H** **p-PAGEL** **e-PAGEL HR** **e-PAGEL**	AE-6530P Rapidas-Minislab WSE-1165 Rapidas-Minisla WSE-1150P PgeRun Ace	AE-6400/AE-6410/AE-6450/AE-6500 AE-6531P/WSE-1100P
19	**c-PAGEL Neo** **cp-PAGEL Neo**	WSE-1030 Compact PAGE Neo WSE-1040 Compact PAGE Neo	AE-7300/AE-7340/AE-7341/AE-7350 WSE-1020/1010/1025
20	**m-PAGEL**	WSE-1170 Multilane Gel Electrophoresis	–
21	**agarGEL**	WSE-1510 DiscRun Ace AE-6540B Mini Compact Disc Electrophoresis	AE-6541/WSE-1500
21	**e-PAGEL** ミニ2次元目用	AE-6530P Rapidas-Minislab WSE-1165 Rapidas-Minisla WSE-1150P PgeRun Ace	AE-6400/AE-6410/AE-6450/AE-6500 AE-6531P/WSE-1100P

Important Notes Regarding Storage and Transportation Temperatures

Storage	**2-10℃**	Transport	**Room temperature**	Caution	Do not freeze

u-PAGEL H

High Molecular Weight Precast Gel

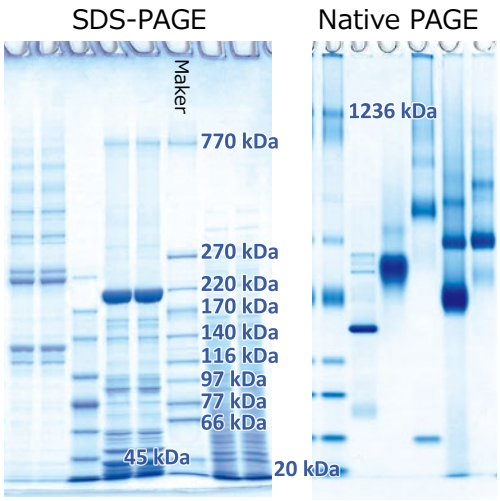
Mini-gel | 18well | 14well | 2-10℃ | 1 year

- **SDS-PAGE for high molecular weight proteins**
- **Protein separation range: 100 kDa to 1,500 kDa**
- **Compatible with ATTO Mini Slab Electrophoresis System**
- **Retention Period: 1 year (store at 2–10°C from date of manufacture)**
- **High-speed electrophoresis capability: Fastest run time 30 minutes**

Gel size	90(W) x 88(H)　t : 1mm
Plate size	120(W) x 100mm(H)　Totoal : 5mm
comb	14well : 4.2mm(W)　volume : 24 µL 18well : 2.9mm(W)　volume : 18 µL
Fraction molecular weight range 5% 3-10% 3-14% 4-20%	 75-1,000kDa (UH-T5/UH-R5) 35-1,500kDa (UH-T310/UH-R310) 20-1,500kDa (UH-T314/UH-R314) 5-600kDa (UH-T420/UH-R420)
Expiration date	Printed on the package
Retention period	One year from manufacture
Strage	2-10℃　(Do not freeze)
Package	10 gels

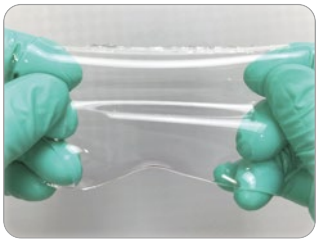
The "fraction molecular weight range" is for SDS-PAGE using Tris/Gly/SDS buffer (AE-1410 EzRun).
When performing native PAGE, use Tris/Gly buffer WSE-7055 EzRun TG.
Refer to the "u-PAGEL H Series" catalog for fractionation range and electrophoresis patterns.
The guaranteed storage temperature is 2–10°C.
Caution: Gels may freeze near cold air vents or during refrigerated transport.

u-PAGEL H is a gel developed through joint research between ATTO and Associate Professor Yukikazu Takeoka of the Graduate School of Engineering at Nagoya University. It offers higher strength than conventional products and is well-suited for separating macromolecules.
It consists of four gel concentrations (5%, 3-10%, 3-14%, and 4-20%) and variations with 14 or 18 samples. The newly developed gel is more tear-resistant than conventional polyacrylamide gels and enables the separation of high molecular weight proteins without requiring special methods.



Ex pattern　u-PAGEL H　UH-T310

	SDS-PAGE	Native PAGE
Buffer	AE-1410 EzRun	WSE-7055 EzRun TG
Condition	300V c.v.　40min	100V c.v.　150min
Stain	AE-1340 EzStain AQua	
Maker	WSE-7035 EzStandard HMW	



Gels using the new crosslinking agent exhibit approximately 1.7 times higher tensile strength than gels using Bis, making them significantly more tear-resistant.
This greatly facilitates handling during staining, destaining, and blotting procedures.

Code	Product	Quantity
2331300	UH-T5 u-PAGEL (5%) 14well	Set of 10
2331302	UH-T310 u-PAGEL (3-10%) 14well	Set of 10
2331306	UH-T314 u-PAGEL (3-14%) 14well	Set of 10
2331304	UH-T420 u-PAGEL (4-20%) 14well	Set of 10
2331310	UH-R5 u-PAGEL (5%) 18well	Set of 10
2331312	UH-R310 u-PAGEL (3-10%) 18well	Set of 10
2331316	UH-R314 u-PAGEL (3-14%) 18well	Set of 10
2331314	UH-R420 u-PAGEL (4-20%) 18well	Set of 10

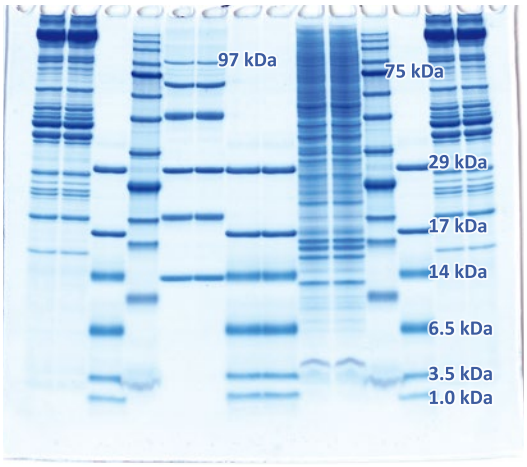
Low Molecular Weight Precast Gel

Mini-gel | 18well | 14well | 2-10℃ | 1 year

- **SDS-PAGE for Low Molecular Weight Proteins**
- **Resolution: 1 kDa to 75 kDa**
- **Compatible with ATTO MiniSlab Electrophoresis System**
- **Shelf Life: 1 year (Store at 2–10°C from date of manufacture)**
- **High-speed electrophoresis time: 60 minutes**
  WSE-1150 PageRun Ace: 24W constant power
  Rapidus MiniSlab: 175V constant voltage

Gel size	90(W) x 88(H)　t : 1mm
Plate size	120(W) x 100mm(H)　Totoal : 5mm
comb	14well : 4.2mm(W)　volume : 24 µL 18well : 2.9mm(W)　volume : 18 µL
Fraction molecular weight range 16.5%	1-75kDa（P-T16.5S/P-R16.5S）
Expiration date	Printed on the package
Retention period	One year from manufacture
Strage	2-10℃　(Do not freeze)
Package	10 gels

The “fraction molecular weight range” is for SDS-PAGE using AE-1415 EzRun T.
For fractionation range and electrophoresis patterns, refer to the “p-PAGEL Series” catalog.
The guaranteed storage temperature is 2–10°C.
Caution: Gels may freeze near cold air vents or during refrigerated transport.



Ex pattern　p-PAGEL　P-T16.5S

Buffer	AE-1415 EzRun T（Tris-Tricine-SDS）
Condition	175V c.v.　60min
Stain	AE-1340 EzStain AQua
Maker	WSE-7025 EzStandard LMW

“p-PAGEL” is a ready-to-use gel for electrophoresis of polypeptides and low-molecular-weight proteins. Use the dedicated buffer “AE-1415 EzRunT” for electrophoresis. Compared to standard SDS-PAGE, it provides sharper separation of lower molecular weight bands. Even low molecular weight samples, which are difficult to run at high speeds, can be electrophoresed in approximately 60 minutes.

※ If low-molecular-weight bands are not detected by Western blotting, please try the following method.
- Prepare the semi-dry blotting buffer with a methanol concentration of 10%.
- Use PVDF membranes with a pore size of 0.2 µ m, such as “ClearBlot P+ Membrane” .
- After blotting, dry the PVDF membrane once, rewet it with methanol, and then proceed with blocking.

Code	Product	Quantity
2332260	P-T16.5S p-PAGEL (16.5%) 14well	Set of 10
2332265	P-R16.5S p-PAGEL (16.5%) 18well	Set of 10
2332325	AE-1415 EzRun T	1
2332348	WSE-7025 EzStandard LMW	1

High Resolution Electrophoresis Precast Gel

Mini-gel | 18well | 14well | 2-10℃ | 1 year

- **High-speed electrophoresis in 25 minutes!**
- **Sharper electrophoresis patterns**
- **Improved separation efficiency for low-molecular-weight species**
- **Suitable for electrophoresis of proteins and DNA**
- **Maintains straight migration even during high-speed electrophoresis**
- **Retension Period: 1 year (store at 2–10° C from date of manufacture)**

Gel size	90(W) x 88(H)　t : 1mm
Plate size	120(W) x 100mm(H)　Totoal : 5mm
comb	14well : 4.2mm(W)　volume : 24 µL 18well : 2.9mm(W)　volume : 18 µL
Fraction molecular weight range	
7.5%	40-400kDa (EHR-T7.5L/EHR-R7.5L)
10%	20-300kDa (EHR-T10L/EHR-R10L)
12.5%	10-250kDa (EHR-T12.5L/EHR-R12.5L)
15%	2-200kDa (EHR-T15L/EHR-R15L)
5-20%	5-400kDa (EHR-T520L/EHR-R520L)
10-20%	2-300kDa (EHR-T1020L/EHR-R1020L)
Expiration date	Printed on the package
Retention period	One year from manufacture
Strage	2-10℃　(Do not freeze)
Package	10 gels

The "fraction molecular weight range" is for SDS-PAGE using Tris/Gly/SDS buffer (AE-1410 EzRun). When using WSE-7065 EzRunMOPS, the above fraction range expands toward the low molecular weight side.
For fraction ranges and electrophoresis patterns, refer to the "PAGEL Series" catalog.
The storage temperature guaranteeing shelf life is 2–10°C.
Caution: Gels may freeze near cold air vents or during refrigerated transport.

How to high-speed high-resolution electrophoresis

Electrophoresis Buffer: WSE-7065 EzRun MOPS
Electrophoresis Conditions: 250V constant voltage, 25–30 minutes
*Using EzRun MOPS enables high-speed electrophoresis and expands the fractionation range for low-molecular-weight components.

Extension of the retention period

e-PAGEL HR has a shelf life of one year (from the date of manufacture), lasting twice as long as the original e-PAGEL.
Even when purchased in bulk, you can use it with confidence thanks to its extended shelf life.

Improve Blotting Efficiency

e-PAGEL HR not only improves electrophoresis patterns but also enhances blotting efficiency. When blotting using the same method as before, transfer to the membrane is even more efficient. Use in combination with semi-dry blotting buffers such as WSE-7210 EzFastBlot HMW or AE-1465 EzFastBlot.

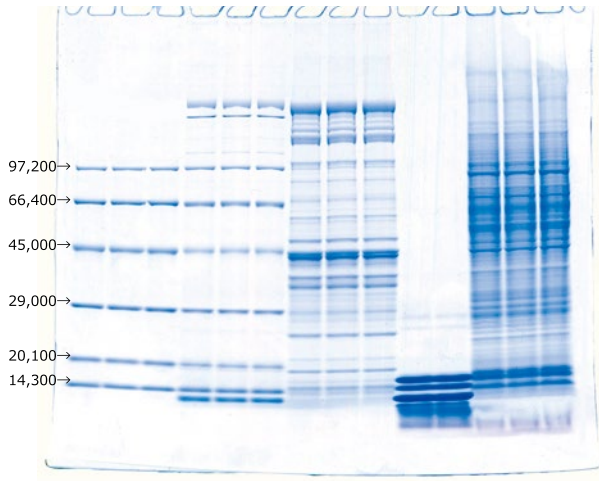
Code	Product	Quantity
2331950	EHR-T7.5L e-PAGEL HR (7.5%) 14well	Set of 10
2331955	EHR-T10L e-PAGEL HR (10%) 14well	Set of 10
2331960	EHR-T12.5L e-PAGEL HR (12.5%) 14well	Set of 10
2331965	EHR-T15L e-PAGEL HR (15%) 14well	Set of 10
2331970	EHR-T520L e-PAGEL HR (5-20%) 14well	Set of 10
2331975	EHR-T1020L e-PAGEL HR (10-20%) 14well	Set of 10
2332050	EHR-R7.5L e-PAGEL HR (7.5%) 18well	Set of 10
2332055	EHR-R10L e-PAGEL HR (10%) 18well	Set of 10
2332060	EHR-R12.5L e-PAGEL HR (12.5%) 18well	Set of 10
2332065	EHR-R15L e-PAGEL HR (15%) 18well	Set of 10
2332070	EHR-R520L e-PAGEL HR (5-20%) 18well	Set of 10
2332075	EHR-R1020L e-PAGEL HR (10-20%) 18well	Set of 10

Standard Precast Gel

Mini-gel | 18well | 14well | 2-10℃ | 6 months

- **Protein SDS-PAGE**
- **Native PAGE**
- **DNA electrophoresis**
- **Compatible with ATTO Mini Slab Electrophoresis System**
- **High cost performance**

Gel size	90(W) x 88(H)　t : 1mm
Plate size	120(W) x 100mm(H)　Totoal : 5mm
comb	14well : 4.2mm(W)　volume : 24 µL 18well : 2.9mm(W)　volume : 18 µL
Fraction molecular weight range	
7.5%	40-400kDa (E-T7.5L/E-R7.5L)
10%	25-300kDa (E-T10L/E-R10L)
12.5%	10-250kDa (E-T12.5L/E-R12.5L)
15%	5-200kDa (E-R15L/E-R15L)
5-20%	5-400kDa (E-T520L/E-R520L)
10-20%	5-300kDa (E-T1020L/E-R1020L)
Expiration date	Printed on the package
Retention period	6 months from manufacture
Strage	2-10℃　(Do not freeze)
Package	10 gels



Ex pattern　e-PAGEL　E-T520L

The "fraction molecular weight range" is for SDS-PAGE using Tris/Gly/SDS buffer (AE-1410 EzRun).
When using WSE-7065 EzRunMOPS, the above fraction range expands toward the low molecular weight side.
For fraction ranges and electrophoresis patterns, refer to the "PAGEL Series" catalog.
The storage temperature guaranteeing shelf life is 2–10°C.
Caution: Gels may freeze near cold air vents or during refrigerated transport.

Code	Product	Quantity
2331800	E-T7.5L e-PAGEL (7.5%) 14well	Set of 10
2331810	E-T10L e-PAGEL (10%) 14well	Set of 10
2331820	E-T12.5L e-PAGEL (12.5%) 14well	Set of 10
2331850	E-T15L e-PAGEL (15%) 14well	Set of 10
2331830	E-T520L e-PAGEL (5-20%) 14well	Set of 10
2331840	E-T1020L e-PAGEL (10-20%) 14well	Set of 10
2331700	E-R7.5L e-PAGEL (7.5%) 18well	Set of 10
2331710	E-R10L e-PAGEL (10%) 18well	Set of 10
2331720	E-R12.5L e-PAGEL (12.5%) 18well	Set of 10
2331750	E-R15L e-PAGEL (15%) 18well	Set of 10
2331730	E-R520L e-PAGEL (5-20%) 18well	Set of 10
2331740	E-R1020L e-PAGEL (10-20%) 18well	Set of 10

Compact Size Precast Gel

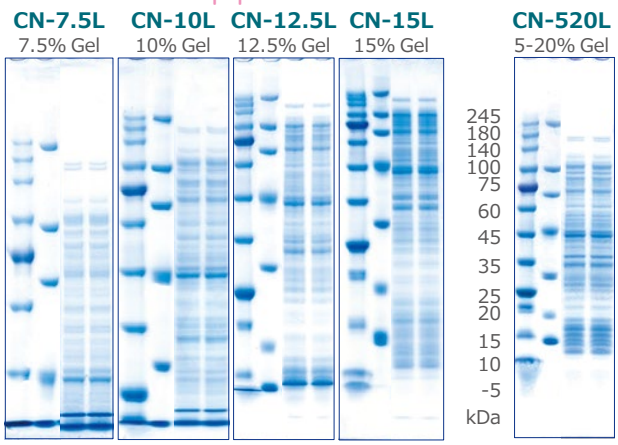
Compact-gel | 15well | 2-10℃ | 1 year

- High-speed electrophoresis in 10 minutes! Standard electrophoresis in 30 minutes
- Sharper electrophoresis patterns; straight migration without bending
- Suitable for protein/DNA electrophoresis
- Retention Period: 1 year (store at 2–10° C from date of manufacture)

Gel size	60(W)x62(H)　t : 1mm
Plate size	76(W)x70mm(H)　Total : 5mm
comb	15well : 2mm(W)　volume : 9 µL
Fraction molecular weight range 7.5% 10% 12.5% 15% 5-20%	 40-400kDa（CN-7.5L） 20-300kDa（CN-10L） 10-250kDa（CN-12.5L） 5-200kDa（CN-15L） 3.5-400kDa（CN-520L）
Expiration date	Printed on the package
Retention period	One year from manufacture
Strage	2-10℃　(Do not freeze)
Package	10 gels

The "fraction molecular weight range" is for SDS-PAGE using Tris/Gly/SDS buffer (AE-1410 EzRun). When using WSE-7065 EzRunMOPS, the above fraction range expands toward the low molecular weight side.
For fraction ranges and electrophoresis patterns, refer to the "PAGEL Series" catalog.
The guaranteed storage temperature is 4–10°C. Please note that gels may freeze near cold air vents or during refrigerated transport.

Clear and sharp pattern



Compact PAGE Neo
450 V (c.v.) 11-12min
Buffer : EzRun
Sample : EzProtein Ladder
EzStandard Ⅱ
E.Coli

Low Molecular Weight Precast Gel

Compact-gel | 15well | 2-10℃ | 1 year

- Electrophoresis of low-molecular-weight proteins/peptides (10 kDa or less) in just 15 minutes!
- Sharper electrophoresis patterns even for low-molecular-weight samples
- Shelf life: 1 year (when stored at 4–10° C from date of manufacture)

Gel size	60(W)x62(H)　t : 1mm
Plate size	76(W)x70mm(H)　Total : 5mm
comb	15well : 2mm(W)　volume : 9 µL
Fraction molecular weight range 16.5%	 1-75kDa（CPN-16.5S）
Expiration date	Printed on the package
Retention period	One year from manufacture
Strage	2-10℃　(Do not freeze)
Package	10 gels

The "fraction molecular weight range" is for SDS-PAGE using AE-1415 EzRun T.
For fractionation range and electrophoresis patterns, refer to the "p-PAGEL Series" catalog.
The guaranteed storage temperature is 2–10°C.
Caution: Gels may freeze near cold air vents or during refrigerated transport.

"cp-PAGEL Neo" is a ready-to-use gel for electrophoresis of polypeptides and low-molecular-weight proteins. Use the dedicated buffer "AE-1415 EzRunT" for electrophoresis.

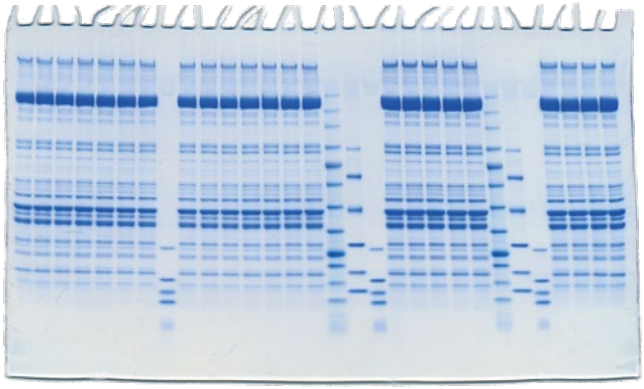
※ Important Notes for Western Blotting
- Prepare the semi-dry blotting buffer with a methanol concentration of 10%.
- Use PVDF membranes with a pore size of 0.2 µ m, such as "ClearBlot P+ Membrane" .
- After blotting, dry the PVDF membrane once, rewet it with methanol, and then proceed with blocking.

Code	Product	Quantity
2331500	CN-520L c-PAGEL Neo (5-20%) 15well	Set of 10
2331510	CN-7.5L c-PAGEL Neo (7.5%) 15well	Set of 10
2331520	CN-10L c-PAGEL Neo (10%) 15well	Set of 10
2331530	CN-12.5L c-PAGEL Neo (12.5%) 15well	Set of 10
2331540	CN-15L c-PAGEL Neo (15%) 15well	Set of 10
2331697	CPN-16.5S cp-PAGEL Neo (16.5%) 15well	Set of 10
2332325	AE-1415 EzRun T	Set of 10
2332348	WSE-7025 EzStandard LMW	Set of 10

Multiple Samples Precast Gel

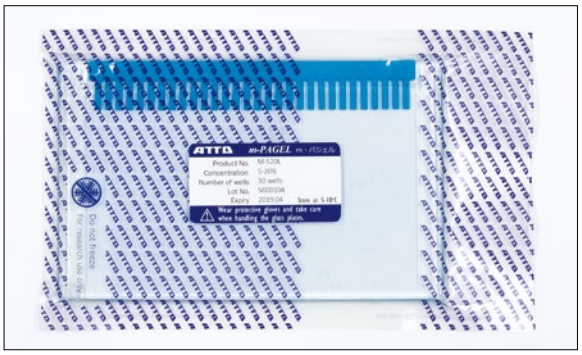
Wide-gel | 30well | 2-10℃ | 1 year

- **Simultaneous electrophoresis of 30 samples**
- **SDS-PAGE, Native PAGE, DNA**
- **5–20% gradient gel**
- **High-speed electrophoresis possible in 35 minutes**
- **Sample volume: Approximately 20μL/well**
- **Retention Period: 1 year from manufacture (2–10°C)**



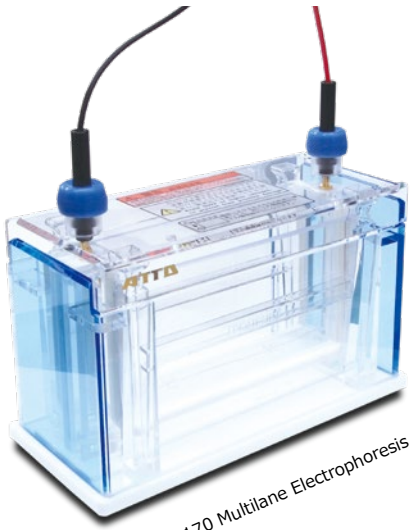
The sample wells are 3 mm wide with a 4.5 mm pitch, making them compatible with sample application using multi-well pipettes.

m-PAGEL is a ready-to-use gel for the WSE-1170 multi-lane gel electrophoresis unit. With gel concentrations ranging from 5% to 20%, it can run 30 lanes per gel, enabling simultaneous comparison of a wide range of molecular weights and multiple samples.
It is also compatible with Western blotting, allowing efficient transfer to membranes.



Gel size	140(W)x88(H)　t : 1mm
Plate size	160(W)x100mm(H)　Total : 5mm
comb	30well : 3mm(W)　volume : 20 μL
Fraction molecular weight range 5-20%	5-400kDa (M-520L)
Expiration date	Printed on the package
Retention period	One year from manufacture
Strage	2-10℃　(Do not freeze)
Package	6 gels

The “fraction molecular weight range” is for SDS-PAGE using Tris/Gly/SDS buffer (AE-1410 EzRun). When using WSE-7065 EzRunMOPS, the above fraction range expands toward the low molecular weight side.
For fraction ranges and electrophoresis patterns, refer to the “PAGEL Series” catalog.
The storage temperature guaranteeing shelf life is 2–10°C.
Caution: Gels may freeze when exposed to cold air vents or during refrigerated transport.



WSE-1170 Multilane Electrophoresis

Code	Product	Quantity
2332240	M-520L m-PAGEL (5-20%) 30well	Set of 6

IEF Precast Gel for First Dimension

Disc-gel | 1D-EP | 2-10℃ | 5 monthes

AgarGel is a ready-to-use gel for one-dimensional isoelectric focusing disc electrophoresis. It utilizes agarose as the support and offers four pH ranges to choose from. With AgarGel, isoelectric focusing of high molecular weight proteins (up to ~250 kDa) is possible. Gels prepared in glass columns can be easily retrieved after electrophoresis.

Electrophoresis Conditions

・A-M Mini Gel Size: c.v. 300V/210 min. Sample loading amount: "A-M type: ~300µg"

・Electrophoresis apparatus: WSE-1510 Discran-Ace / AE-6540 Disc Electrophoresis Apparatus, etc.

Gel size	2.5mm(Φ) x 75mm(L)
Column size	7mm(Φ)x100mm(L)
Fraction PI range 3-10 3-8 5-8 5-10	 A-M310 A-M38 A-M58 A-M510
Expiration date	Printed on the package
Retention period	5 months from manufacture
Strage	2-10℃ (Do not freeze)
Package	10 gels

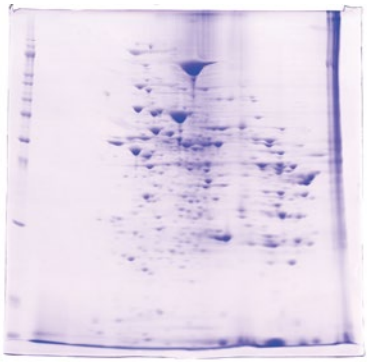
Code	Product	Quantity
2332200	A-M310 AgarGEL (pH3-10)	Set of 10
2332210	A-M38 AgarGEL (pH3-8)	Set of 10
2332220	A-M58 AgarGEL (pH5-8)	Set of 10
2332230	A-M510 AgarGEL (pH5-10)	Set of 10

Precast Gel for Second Dimension

Disc-gel | 2D-EP | 2-10℃ | 6 monthes

Gel size	90(W) x 88(H) t : 1mm
Plate size	120(W) x 100mm(H) Totoal : 5mm
Fraction molecular weight range 7.5% 10% 12.5% 5-20%	 40-400kDa (E-D7.5L) 25-300kDa (E-DR10L) 10-250kDa (E-D12.5L) 5-400kDa (E-D520L)
Expiration date	Printed on the package
Retention period	6 months from manufacture
Strage	2-10℃ (Do not freeze)
Package	10 gels

※ The top surface of the 2D gel is flat and lacks wells.



Second-dimensional electrophoresis can be performed using the Rapidus Minislab (AE-6530/WSE-1150/1165) or the Compact PAGE (WSE-1010/1025).

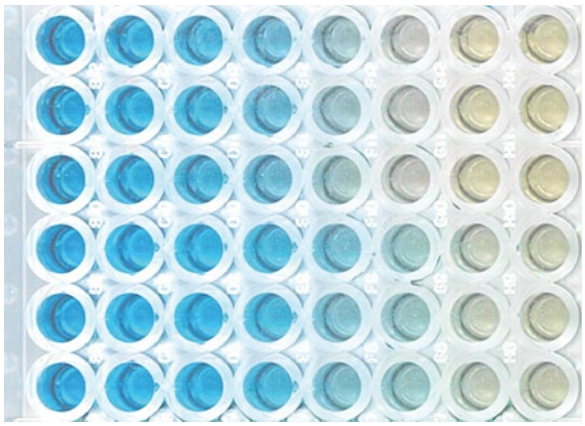
Code	Product	Quantity
2331910	E-D10L e-PAGEL (10%) for 2D/EP	Set of 10
2331920	E-D12.5L e-PAGEL (12.5%) for 2D/EP	Set of 10
2331930	E-D520L e-PAGEL (5-20%) for 2D/EP	Set of 10
2331940	E-D7.5L e-PAGEL (7.5%) for 2D/EP	Set of 10

Protein Extraction Kit

page	Category	Model	Product	Retention Period	Storage temperature
15	**Protein Quantification Kit Bradford method**	**WSE-7510**	**EzBradford Protein Assay Kit**	1 year	Refrigerated
16	**Protein Quantification Kit BCA Method**	**WSE-7520**	**EzBCA Protein Assay Kit**	1 year	Refrigerated
17	**Protein Extraction Kit for Animal Cells**	**WSE-7420**	**EzRIPA Lysis Kit**	1 year	Refrigerated/-20℃
18	**Protein Extraction Kit for Bacteria and Yeast**	**WSE-7423**	**EzBactYeast Crusher**	1 year	RT/-20℃
19	**Animal Cell Organelle Fractionation and Extraction Kit**	**WSE-7421**	**EzSubcell Extract**	1 year	RT/Refrigerated/-20℃
20	**Nuclear and Mitochondrial Fractionation and Extraction Kit for Animal Cells**	**WSE-7422**	**EzSubcell Fraction**	1 year	Refrigerated/-20℃
21	**Native PAGE Protein Extraction Kit**	**WSE-7424**	**EzProteoLysis Native**	1 year	Refrigerated/-20℃

WSE-7510 EzBradford Protein Assay kit

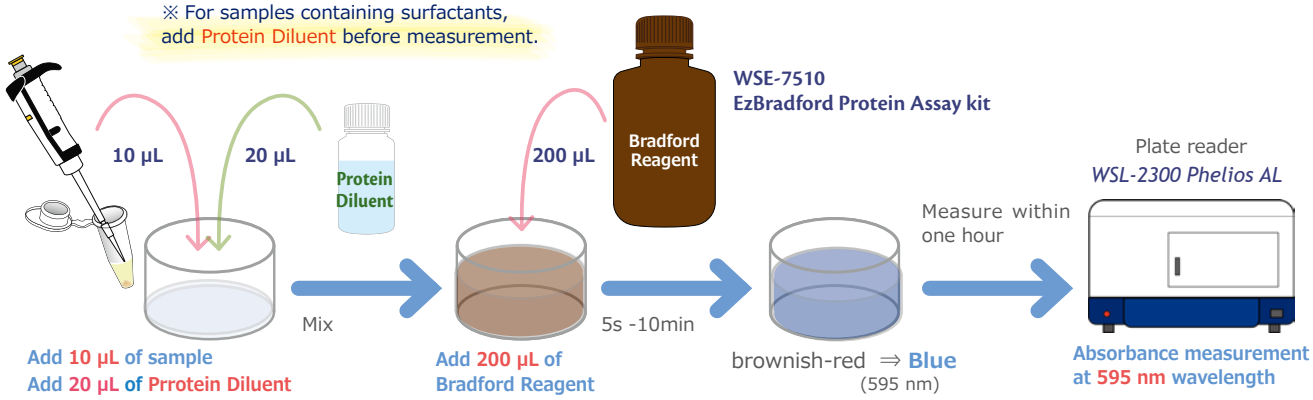
The **Bradford Reagent** enables sensitive quantification of total protein content even **in samples containing surfactants**.



WSE-7510 EzBradford Protein Assay Kit is designed to minimize surfactant interference and quantify total protein content using the Bradford method. It includes Bradford solution, standard proteins (BSA, BGG), and a protein dilution buffer to reduce surfactant interference. The approximate quantification range is 10–2,000 µg/mL using the standard method and 1–50 µg/mL using the low-concentration measurement method.

※ Bradford M. M., Analytical Biochemistry 72, 248-254 (1976)

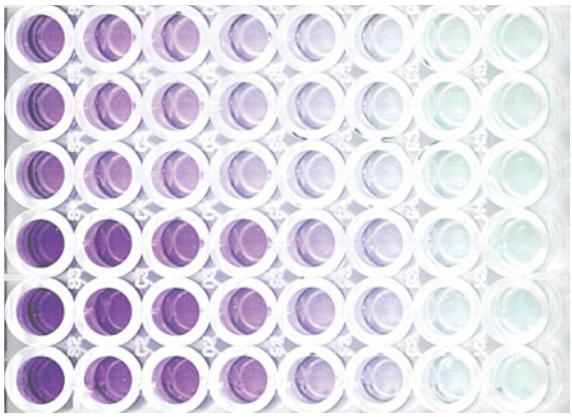
Model	**WSE-7510 EzBradford Protein Assay Kit**
Conposition	① Bradford Reagent : 500 mL about 2,500 well ② Protein Diluent : 50 mL ③ BSA Standard (2 mg/mL) : 10 mL ④ BGG Standard (2 mg/mL) : 10 mL
Strage	Lightproof refrigerated
Retention period	1 year from manufacture
Code No.	2332382



	Standard		Low-concentration region		Contains surfactant (standard)		Contains surfactants (low concentration range)	
Container	Plate	Cubette	Plate	Cubette	Plate	Cubette	Plate	Cubette
Volume	10 µL	25 µL	50 µL	250 µL	10 µL	25 µL	50 µL	250 µL
Protein Diluent	–				20 µL	50 µL	100 µL	500 µL
Bradford Reagent	200 µL	1 mL	150 µL	750 µL	200 µL	1 mL	150 µL	750 µL
Tenperature	Room tenperature							
Reaction time	5 s - 10 min (Stable for an hour)							
Measurement wavelength	595 nm							
Detection sensitivity	10-2,000 µg/mL		1-50 µg/mL		10-2,000 µg/mL		5-50 µg/mL	

WSE-7520 EzBCA Protein Assay kit

BCA Assay Reagent: Enables quantification of total protein content across a wide concentration range while minimizing the influence of reducing agents.

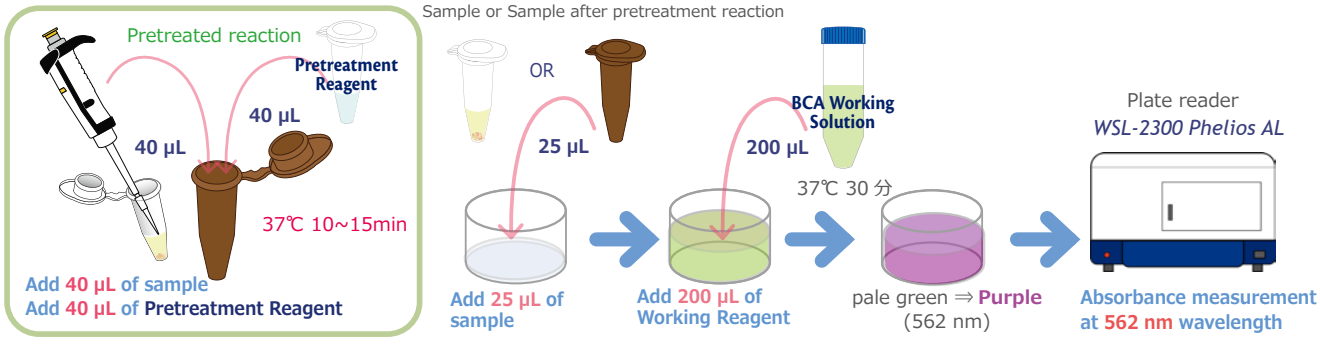


WSE-7520 EzBCA Protein Assay Kit is a kit for quantifying total protein content using the BCA method. It contains BCA solutions (A and B), standard proteins (BSA, BGG), and a pretreatment reagent and solution to reduce interference from reducing agents. The approximate quantification range is 15–2000 µg/mL using the standard method and 3–100 µg/mL using the low-concentration measurement method.

※ Smith P. K., Analytical Biochemistry 150, 76-85 (1985)

Model	**WSE-7520 zBCA Protein Assay Kit**
Conposition	① BCA Reagent A : 500 mL about 2,500 well ② BCA Reagent B : 12 mL ③ Pretreatment Solution : 50 mL ④ Pretreatment Agent : 800 mg ⑤ BSA Standard (2 mg/mL) : 10 mL ⑥ BGG Standard (2 mg/mL) : 10 mL
Strage	①② Room temperature ③ - ⑥ Lightproof refrigerated
Retention period	1 year from manufacture
Code No.	2332384

※ Samples containing reducing agents must be pretreated before measurement.



※ If a pretreatment reaction is performed, add 250 µL.

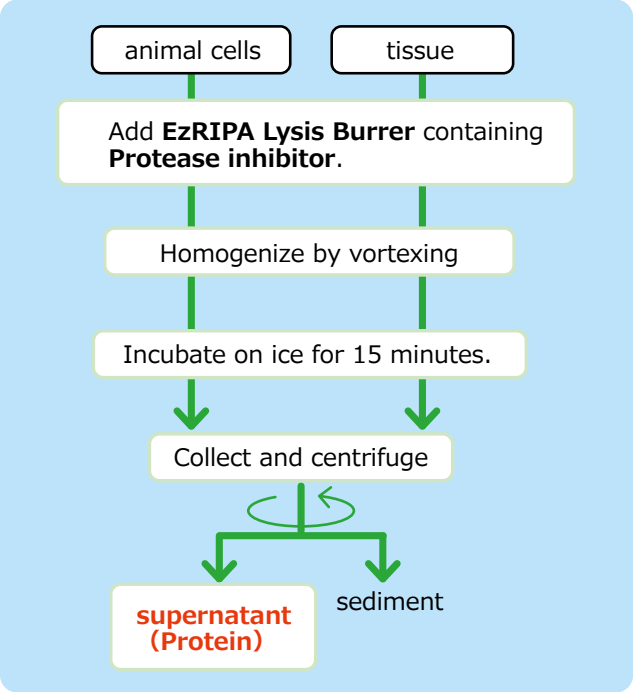
	standard		Low-concentration region		Containing a reducing agent	
Container	Plate	Cubette	Plate	Cubette	Plate	Cubette
Volume (Preprocessing)	–				40 µL	55 µL
Pretreatment Reagent					40 µL	55 µL
Preprocessing tenperature					37℃	
Preprocessing time					10~15 min	
Volume (Measurement)	25 µL	50 µL	25 µL	50 µL	25 µL	50 µL
Working Reagent	200 µL	1 mL	200 µL	1 mL	250 µL	1 mL
Tenperature	37℃		60℃		37℃	
Reaction time	30 min		30-60 min		30 min	
Measurement wavelength	562 nm					
Detection sensitivity	15-2,000 µg/mL		3-100 µg/mL		125-2,000 µg/mL	

WSE-7420 EzRIPA Lysis kit

Protein extraction from animal cells

・Proteins can be easily extracted simply by adding EzRIPA Lysis Buffer to cells.

Extraction protocol



Specialty

For animal cells (Extraction from the t issue is also possible)
RIPA Solubilization Buffer for Extracting All Proteins
Protease Inhibitor and Phosphatase Inhibitor Attachment
The extraction process will be completed within 1 hour.
Amin-free formulation

Model	**WSE-7420 EzRIPA Lysis kit**
Kit Contents	① EzRIPA Lysis buffer: 100mL : Refrigerated storage 20mM HEPES(pH7.5)、1%IGEPAL® CA630、0.1%SDS、 0.5% Sodium deoxycholate、150mM NaCl ② Protease inhibitor (100x): 1mL : Freezing ③ Phosphatase inhibitor (100x): 1mL : Freezing
Number of uses	100 times
Processing Capacity (per 1 mL)	Cell count : ~ 2×10^7 (φ 10cm Dish Confluent *) : Approximately 50-100mg
Retention period	① RIPA Lysis Buffer : Refrigerated storage 1 year ②③ inhibitor : freezing 1 year
Code No.	2332336

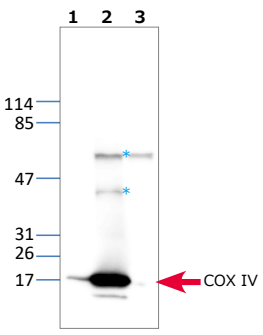
* Cell counts vary depending on cell type, culture medium, and environment.

Example

Immunoprecipitation/Western Blot analysis of cell lysates prepared using the EzRIPA Lysis Kit

Immunoprecipitation (IP) of Hela cell lysate extracted using the EzRIPA Lysis Kit was performed with the COX IV antibody, followed by detection of COX IV via Western blotting (WB) using the same antibody.
Lane 1 is the total cell lysate, Lane 2 is the sample immunoprecipitated with the COX IV antibody, and Lane 3 is the sample immunoprecipitated with the LSD1 antibody.

* indicates a band derived from the antibody used in the immunoprecipitation.

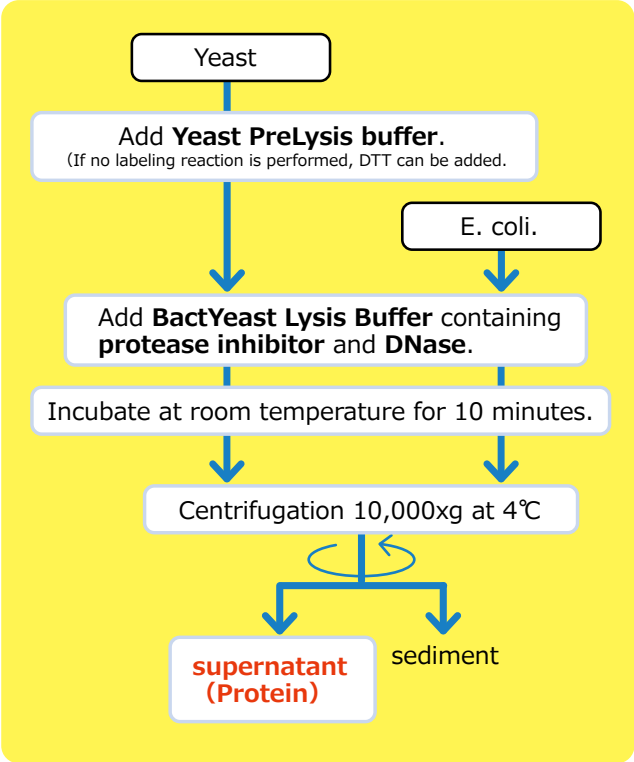


WSE-7423 EzBactYeast Crusher

Protein extraction from E. coli and yeast

- **Proteins can be easily extracted simply by adding BactYeast Lysis Buffer to E. coli.**
- **After treating the cell walls with PreLysis Buffer, add BactYeast Lysis Buffer to extract the proteins.**

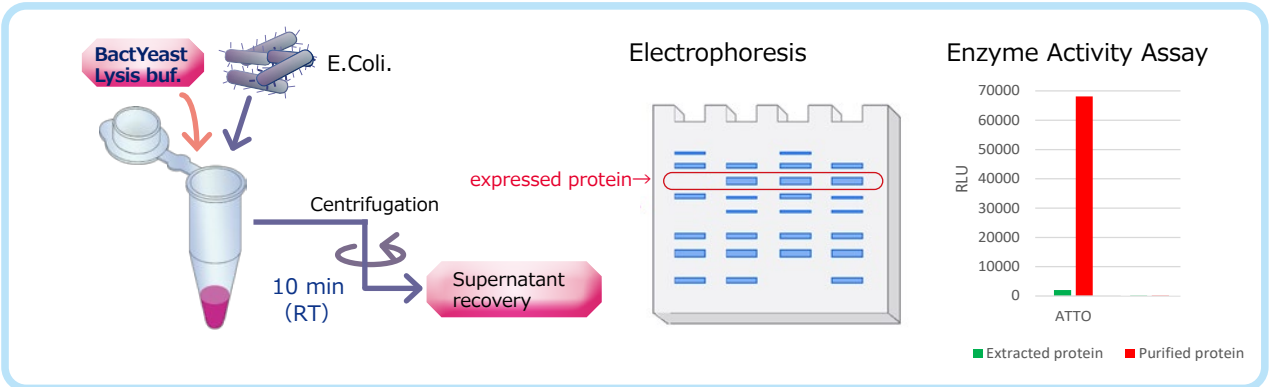
Extraction protocol



Specialty

for E.Coli. and Yeast
（Yeast requires treatment with PreLysis Buffer.）
No physical destruction required, such as glass beads or homogenizers
His tag, GST tag proteins are ideal for purification.
Less likely to inhibit the enzymatic activity of the extracted protein
Protease Inhibitor /DNase Attachment
The extraction process will be completed within 30 minutes.
Amin-free formulation

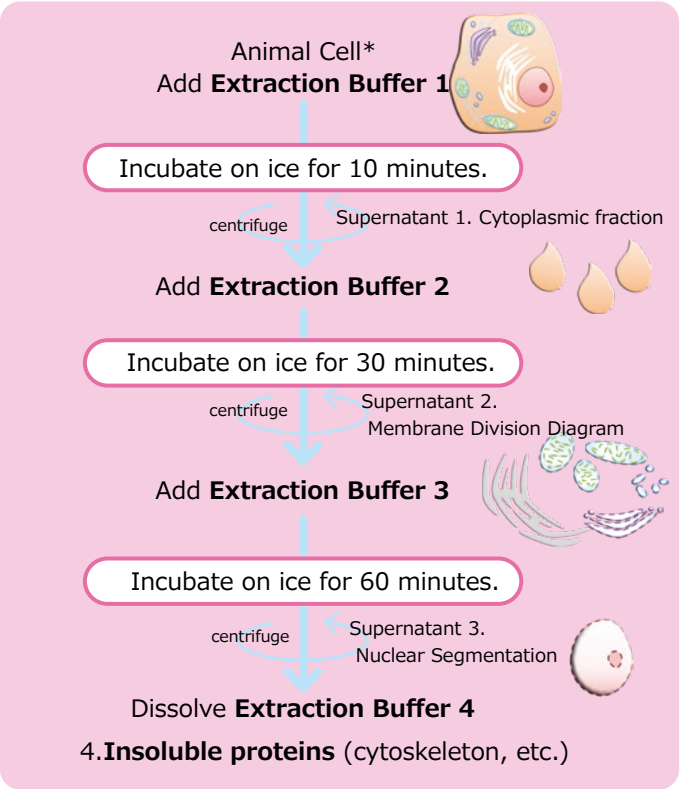
Model	**WSE-7423 EzBactYeast Crusher**
Kit Contents	① Yeast PreLysis Buffer : 100mL : Store at RT ② BactYeast Lysis Buffer : 100mL : Store at RT ③ DNase (100x): 1mL : Freezing ④ Protease inhibitor (100x): 1mL : Freezing
Number of uses	100 times
Processing Capacity (per 1 mL)	Bacterial mass: Approximately 50–100 mg
Retention period	①② Lysis Buffer : RT　1 year ③ DNase : freezing　1 year ④ Inhibitor : freezing　1 year
Code No.	2332339



WSE-7421 EzSubcell Extract

Organelle Fractionation and Extraction Kit for Animal Cells

- **Fractionation and extraction of cytoplasm, membranes, nuclei, and insoluble proteins from animal cells**
- **Fractionation possible without ultracentrifugation (using refrigerated centrifuge/up to 10,000xg)**



＊ Tissue (50–100 mg) should be finely chopped using scissors or similar tools, then dispersed into cells via trypsin treatment or similar methods. Plants can be fractionated if they are protoplasts.

Specialty
Electrophoresis, immunoprecipitation, ELISA, chromatin immunoprecipitation, enzyme activity assays, etc.
All fractionation procedures completed within 3 hours
Extraction possible from cultured cells as well as suspension cells
Extraction possible from animal tissues and frozen cells
→ For tissues, cutting with scissors followed by trypsin treatment is recommended

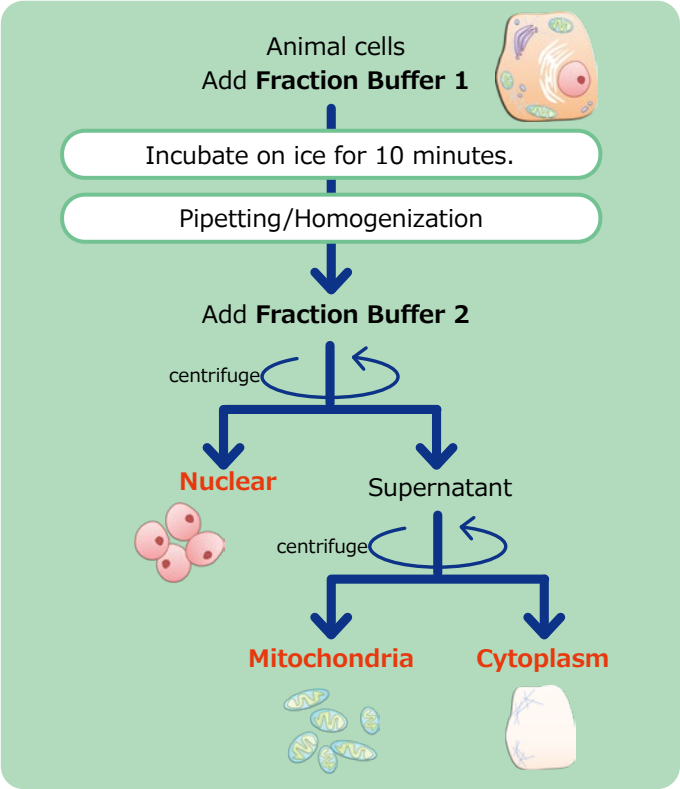
Model	**WSE-7421 EzSubcell Extract**
Kit Contents	① Extraction buffer 1: 50 mL ② Extraction buffer 2: 50 mL ③ Extraction buffer 3: 25 mL ④ Extraction buffer 4: 25 mL ⑤ Protease inhibitor(100X): 1.25 mL ⑥ DNase I: 0.25mL
Number of uses	50 times
Processing Capacity (per 1 mL)	Cell count : ~ 2×10^7 (φ 10cm Dish Confluent *) : Approximately 50-100mg
Retention period	① - ③ : Refrigerated storage 1 year ④ : RT 1 year ⑤⑥ : Freezing 1 year
Code No.	2332337

* Cell counts vary depending on cell type, culture medium, and environment.

WSE-7422 EzSubcell Fraction

Nuclear and Mitochondrial Fractionation and Isolation Kit from Animal Cells

- **Fractionate the nucleus, mitochondria, and cytoplasm from animal cells**
- **Fractionation possible without ultracentrifugation (refrigerated centrifuge/up to 10,000xg)**



Specialty
Isolation of Nuclei and Mitochondria
Fractionation within 2mL tubes
Entire fractionation process completed within 2 hours
Surfactant use optional
→ When fractionating peroxisomes, etc., from the cytoplasmic fraction, non-use is recommended

Model	**WSE-7422 EzSubcell Fraction**
Kit Contents	① Fraction buffer 1: 50 mL ② Fraction buffer 2: 50 mL ③ RIPA Lysis buffer: 20 mL ④ Detergent mix (50x): 1 mL ⑤ Protease inhibitor (100x): 0.7 mL
Number of uses	50 times
Processing Capacity (per 1 mL)	Cell count : ~ 2×10^7 (φ 10cm Dish Confluent *)
Retention period	① - ③ : RT　1 year　④⑤ : Freezing　1 year
Code No.	2332338

* Cell counts vary depending on cell type, culture medium, and environment.

WSE-7430 EzPBS (-)

Sterile PBS buffer

It can be used as a cleaning buffer for the EzSubcell series.

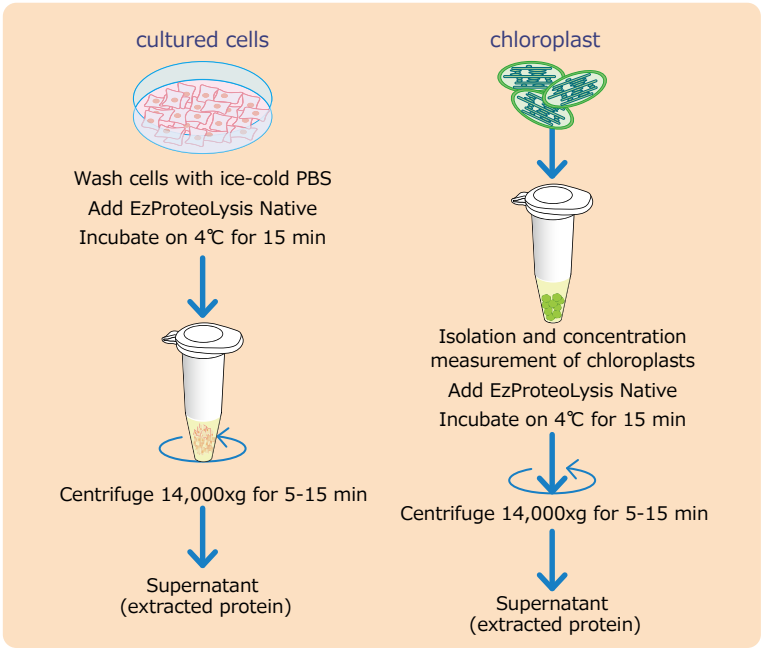
	WSE-7430 EzPBS (-)
Volume	1 L (10x)
Conpornent	Phosphate buffer (pH7.4)、NaCl、KCl
Preparation method	Dilute EzPBS (-) 10 times with distilled water Add 1/100 amount of EzTween
Strage	Room temperature　1 year
Code No.	2332380

- Phosphate-buffered saline (PBS)
- Sterile
- 10x concentrated solution, 1 L (yields 10 L)
- DNase-free
- Calcium/magnesium-free

WSE-7424 EzProteoLysis Native

Native PAGE Protein Extraction Kit

・Dissolve animal tissues and cultured cells to extract native proteins (including membrane proteins).

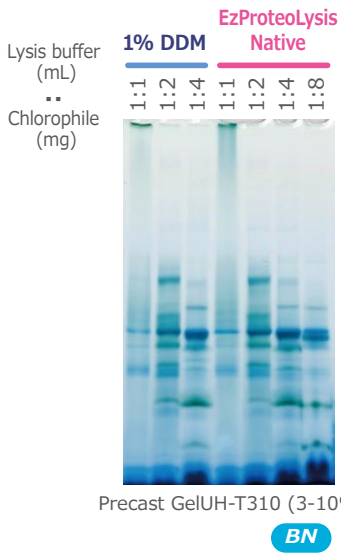


Native proteins (including membrane proteins) can be extracted from animal and plant tissues and cultured cells without compromising their activity.

- ・Sample preparation for Native PAGE
- ・Enzyme activity measurement
- ・Sample preparation for electrophoresis
- ・Sample preparation for Western blotting
- ・Sample preparation for immunoprecipitation
- ・Sample preparation for ELISA
- ・Mixing samples and reagent solutions for protein labeling, etc., and allowing to stand → Centrifuge → Simple operation: just collect the supernatant Protease Inhibitor and Phosphatase Inhibitor included in the kit Maintains protein structure/activity (enzyme activity, fluorescence emission, etc.) Maintains the structure of protein complexes and oligomers

Model	**WSE-7424 EzProteoLysis Native**
Kit Contents	① EzProteoLysis Native : 30 mL ② Protease inhibitor (100x) : 0.3 mL ③ Phosfatase inhibitor (100x) : 0.3 mL
Number of uses	30 samples
Processing Capacity (per 1 mL)	Cell count : ~ 2×10^7 (φ 10cm Dish Confluent *)
Retention period	① : Refrigerated storage 1 year ②③ : Freezing 1 year
Code No.	2332319

* Cell counts vary depending on cell type, culture medium, and environment.



Proteins were extracted by adding 1, 2, 4, or 8 mL of 1% DDM lysis buffer or EzProteoLysis Native to 1 mg of chloroplasts. EzApply Native was added at 1/10 the volume to each extract, and separation was performed by Blue Native PAGE using u-PAGEL H (3–10%). EzRun BlueNative was used as the electrophoresis buffer. EzProteoLysis Native demonstrated extraction efficiency and electrophoresis patterns equivalent to 1% DDM.

Sample Preparation Kit Line-Up

page	Purpose	Model	Products	Shelf life	Strage temp
30	Native PAGE Sample Preparation Buffer	**WSE-7011**	**EzApply Native**	1 year	Refrigerated
31	High-Resolution Sample Preparation Kit for SDS-PAGE	**AE-1430**	**EzApply**	6 months	-20℃
31	High-Resolution SDS-PAGE Electrophoresis Buffer	**AE-1412**	**EzRun C+ (Powder for 500mL x 10)**	1 year	RT
32	2-D Electrophoresis Sample Preparation Kit (Hydrophobic Components/ Hydrophilic Components)	**AE-1435**	**EzApply 2D Kit**	6 months	-20℃
32	DDNA Electrophoresis Loading Buffer	**WSE-7040**	**EzApply DNA**	1 year	Refrigerated
33	Fluorescent Labeling Kit	**WSE-7010**	**EzLabel FluoroNeo**	1 year	-20℃

WSE-7011 EzApply Native

Native PAGE Sample Preparation Buffer

- **Sample preparation reagents for various Native PAGE applications**
- **Simply add 1/10 volume of sample solution**
- **10x stock solution (refrigerated storage)**
- **Contains electrophoresis dye and adds density**

■How to use EzApply Native

(1) Add EzApply Native to the sample solution extracted using EzProteoLysis Native or similar methods to achieve a 1/10 volume ratio, then mix thoroughly to create the electrophoresis sample solution.

Example: Sample solution: EzApply Native = 9μL : 1μL = Total 10μL

(2) Apply the prepared sample to the gel ready for electrophoresis.

(3) After electrophoresis is complete, visualize and detect the bands using Coomassie Brilliant Blue (CBB) staining or equivalent.

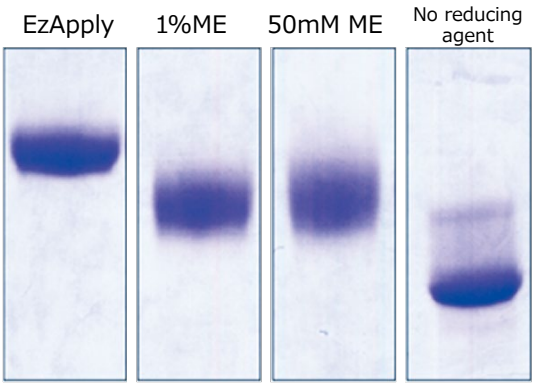
	WSE-7011 EzApply Native
Contents	EzApply Native（10x） : 40mL
Storage temperature	Refrigerated
Retention period	1 year（from manufacture）
Code No.	2332317

AE-1430 EzApply

Sample Preparation Buffer for SDS-PAGE

- **Protein reduction treatment**
- **SDS treatment buffer kit**
- **Produces sharper SDS-PAGE band patterns.**
- **Even sharper results when used with AE-1412 EzRun C+**

SDS-PAGE is an electrophoresis method that separates protein molecules based on differences in their migration rates, which depend on molecular weight. To obtain good experimental results, thorough sample preparation of the proteins is essential.
Typically, SDS-PAGE samples are prepared by mixing the protein solution with a sample buffer containing SDS and mercaptoethanol, followed by heat treatment. EzApply is a sample processing solution containing DTT (dithiothreitol), which has a higher ability than mercaptoethanol to break protein disulfide bonds.
Disulfide bonds can re-form during electrophoresis, causing poor separation patterns. Combining the running buffer with AE-1412 EzRun C+ yields sharp electrophoresis patterns.



The figure above shows data comparing the reducing effects of mercaptopropanol (ME) and DTT to confirm the effectiveness of DTT.
Bands processed with EzApply containing DTT appear sharper compared to ME-treated bands and bands without reducing agents.

	AE-1430 EzApply
Kit contents	① EzApply : 30mL ② DTT (Dithiothreitol) : 5 tubes (powder)
Number of use	5 mLx5 times
Preparation Method	Add 5 mL of EzApply to the DTT tube and dissolve completely. Mix the prepared EzApply with the protein solution in a 1:1 ratio, boil for 5 minutes, and prepare the electrophoresis sample.
Strage	Freezing 6 months The prepared EzApply solution is stable for 3 months at -20° C.
Code No.	2332330

AE-1412 EzRun C+

High-Resolution Electrophoresis Buffer for SDS-PAGE

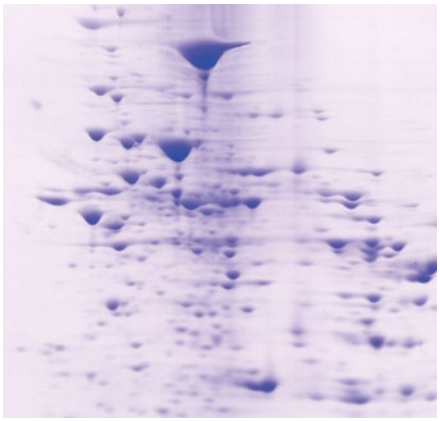
EzRun C+ is an electrophoresis buffer for SDS-PAGE.
It contains components that prevent the -SH groups of proteins from re-constituting during electrophoresis, enabling sharper electrophoresis patterns than conventional SDS-PAGE buffers.

	AE-1412 EzRunC+
Volume	Powder for 500mL 10 bags
Preparation Method	Dissolve in distilled water (Prepare as needed)
Primary use	High-Resolution SDS-PAGE
Gel	Tris-HCl buffer baced
Strage	Room temperature 1 year (Unopened)
Code No.	2332320

AE-1435 EzApply 2D Kit

2-D Electrophoresis Sample Preparation Kit

- **Extract proteins from tissues or cells and process samples**
- **Extract proteins from plants and process samples**
- **Extract proteins from bacteria and process samples**
- **Prepare protein samples by separating them into water-soluble and insoluble components.**



Using this kit to prepare protein samples allows separation into water-soluble and insoluble (primarily hydrophobic) components, enabling preparation of samples for two-dimensional electrophoresis. This improves the two-dimensional electrophoresis pattern on mini-gels.
Solution 1 extracts water-soluble components, while Solution 2 extracts insoluble components. When used in combination with AE-1430 EzApply, the resulting sample can also be used for SDS-PAGE.

	AE-1435 EzApply 2D kit
Kit contents	① Wash Buffer : 30mLx2 ② Solution 1 : 20mL ③ Solution 2 : 10mL ④ Solution 1-2 : powder ⑤ Solution 2-2 : powder ⑥ Solution 1 : 1mL ⑦ Solution 2 : 1mL ⑧ Solution 1　DTT : powder ⑨ Solution 2　DTT : powder
Number of use	Cells 100mgx20 times
Preparation Method	Please refer to the manual.
Strage	Freezing　6 months Use prepared reagents within 3 months.
Code No.	2332335

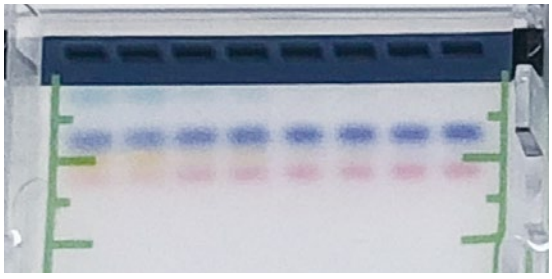
WSE-7040 EzApply DNA

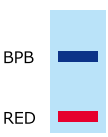
DNA Loading Dye

- **DNA loading solution for electrophoresis (with BPB/RED) for sharper bands**
- **Simply mix with your DNA sample solution for agarose gel electrophoresis.**

EzApply DNA is a ready-to-use DNA loading buffer for electrophoresis.
Mixing it with extracted DNA or PCR-amplified DNA solutions before electrophoresis allows you to confirm migration during the run and also sharpens the bands.

	WSE-7040 EzApply DNA
Volume	10mL
Usage	DNA soln. : EzApply DNA = **5 μL : 1 μL**
Strage	Refrigerated　1 year（Freezing　2 years）
Code No.	2332394





During electrophoresis, a blue band for BPB appears in the middle, and a red band for RED appears at the end.

	1%	2%	agarose
BPB	400bp	150bp	
RED	50bp	10bp	

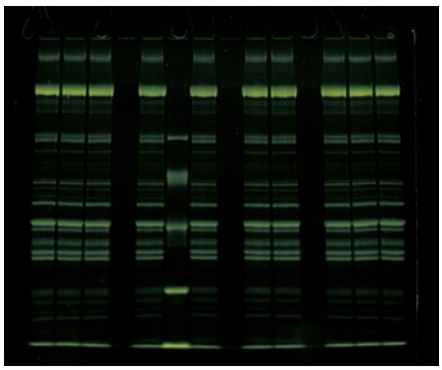
WSE-7010 EzLabel FluoroNeo

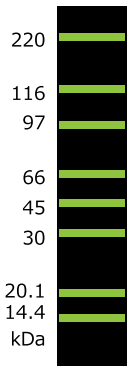
Fluorescent Labeling and Electrophoresis Sample Preparation Kit for Proteins

- **Suitable for normalizing all proteins**
- **Mix protein solution with EzLabel FluoroNeo, heat for 3 minutes → Fluorescent labeling complete**
- **Suitable for SDS-PAGE, Native PAGE, 2-dimensional electrophoresis, and Western blotting**
- **Detectable under Blue LED without removing from glass plate**

Excitation light source for fluorescence detection
Gel : WSE-5600/5610/5620 CyanoView/Ⅱ/Ⅲ
Membrane : WSE-5510/5520 VariRays Ⅰ/Ⅱ

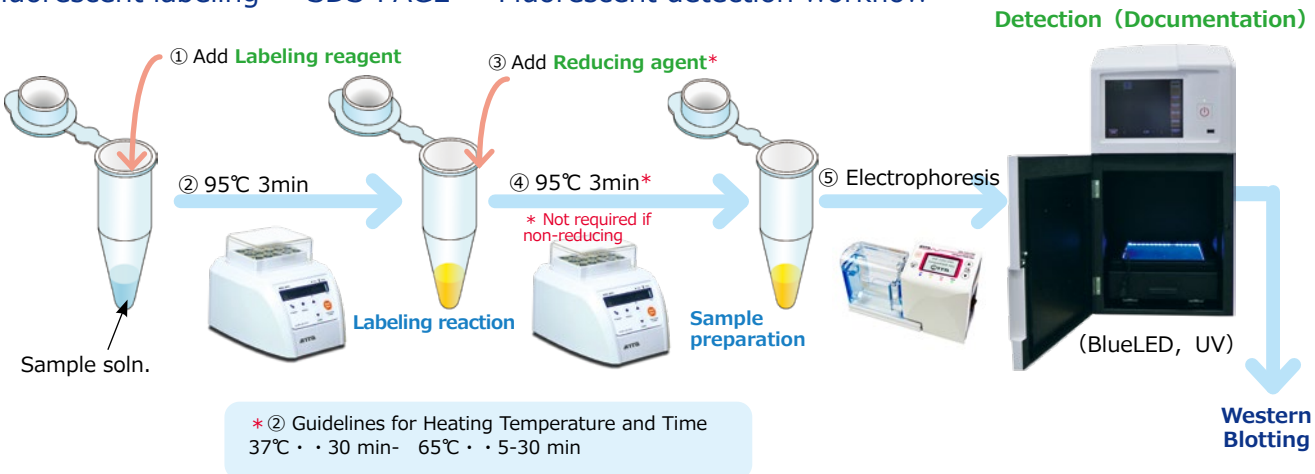
	WSE-7010 Label FluoroNeo
Kit contents	① Sample buffer (5x): 12 mL ② Labeling reagent: 10 mg ③ Reducing agent (DTT): 300 mg ④ MW marker : 600 μL (220, 116, 97, 66, 45, 30, 20.1, 14.4kDa) ⑤ RIPA Lysis buffer: 10 mL
Numbers of use	2,000 times　Using 5 μL per sample (20 μL)
Application	SDS-PAGE、2D/EP、Western blotting、Immunoprecipitation .etc
Strage	Freezing　1 year　(Unopened) Fluorescently labeled molecular weight markers　Freezing 3 months
Code No.	2332333





★Fluorescent Molecular Weight Markers
Labeling the included molecular weight markers allows preparation of fluorescent molecular weight markers ranging from 220 to 14.4 kDa (left figure). The prepared fluorescent molecular weight markers can be stored frozen for up to 3 months.

Fluorescent labeling → SDS-PAGE → Fluorescent detection workflow



*② Guidelines for Heating Temperature and Time
37℃・・30 min-　65℃・・5-30 min

- After fluorescence detection using a blue LED light source, Western blotting is possible.
- The gel can also be stained with Coomassie Brilliant Blue or silver staining.
- It can be used for SDS-PAGE, non-reducing SDS-PAGE, Native PAGE, 2-dimensional electrophoresis, and more.

Electrophoresis Buffer Lineup

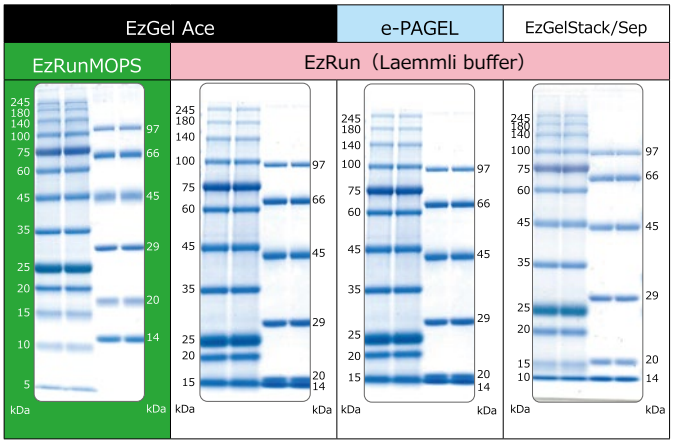
page	Purpose	Model	Products	Shelf life	Strage temp
27	Gel Preparation Buffer	**WSE-7310** **WSE-7150** **WSE-7155**	**EzGel Ace** **EzGel Sep** **EzGel Stack**	1 year	RT
28	High-Speed High-Resolution Electrophoresis Buffer	**WSE-7065** **WSE-7065L**	**EzRun MOPS（250mL）** **EzRun MOPS（1 L）**	1 year	RT
29	SDS-PAGE Buffer	**AE-1410** **AE-1411**	**EzRun（powder for 10 L）** **EzRun（5L）**	2.5 years	RT
29	High-Resolution SDS-PAGE Electrophoresis Buffer	**AE-1412**	**EzRun C+（powder for 500mLx10）**	1 year	RT
29	Low-Molecular-Weight Electrophoresis Tris-Tricine Buffer	**AE-1415**	**EzRun T**	1 year	RT
30	For Nucleic Acid Electrophoresis MOPS Buffer	**WSE-7066**	**EzRun MOPS non-SDS**	1 year	Light blocking RT
30	BN-PAGE Cathodic Electrophoresis Buffer Additive	**WSE-7067**	**EzBlueNative Additive**	1 year	RT
31	TAE Buffer	**WSE-7050**	**EzRun TAE**	1 year	RT
31	TBE Buffer	**WSE-7051**	**EzRun TBE**	1 year	RT
31	TG Buffer	**WSE-7055**	**EzRun TG**	1 year	RT
32	Clear Native PAGE Buffer	**WSE-7056**	**EzRun ClearNative**	1 year	RT
32	Blue Native PAGE Buffer	**WSE-7057**	**EzRun BlueNative**	1 year	RT

※RT＝Room Temperature

WSE-7310 EzGel Ace

Buffer for high-speed and high-resolution gel preparation

- **Polyacrylamide gels prepared with EzGel Ace can be stored refrigerated for up to one month!**
- **Achieve high-speed electrophoresis + sharp bands using EzRun MOPS: High-speed high-resolution electrophoresis**



When performing standard SDS-PAGE, the electrophoresis patterns of EzGel Ace gels show correlation with e-PAGEL (precast gels) and standard Tris-HCl gels (including EzGelStack/Sep).
When combined with the EzRunMOPS electrophoresis buffer, the molecular weight range of the fractions expands (as shown in the electrophoresis pattern at the far left in the figure above).

Mini-slab gel (90x83x1mm)	Buffer	Condition	Time
EzGel Ace gel（10%）	EzRun	c.v.300V	35 min
EzGel Ace gel（10%）	EzRun MOPS	c.v.250V	**25 min**
e-PAGEL（10%） EzGel Stack/Sep gel（10%）	EzRun	c.c.20mA	75 min

名称	**WSE-7310 EzGel Ace**
Volume	250mL (4x Concentrated: Equivalent to 66 Mini Gels)
Number of use	3.8mL/ Minigel 1 (stacking gel : 1.3mL/preparation gel : 2.5mL)
Application	Polyacrylamide gel preparation (for stacking gel and preparation gel)
Strage	Room temperature 1 year

EzGel Ace is a gel preparation buffer that minimizes smearing even during high-speed electrophoresis, enabling sharp SDS-PAGE electrophoresis patterns.

Gels prepared using “EzGel Ace” can be stored refrigerated for up to one month. It is ideal for preparing homemade gels in advance. There is minimal impact on the electrophoresis pattern of stored gels.

“EzGel Ace” can be used as a buffer for both concentration gels and separation gels.

WSE-7150 EzGel Sep WSE-7155 EzGel Stack

Polyacrylamide gel prepararion buffer

EzGel Sep and EzGel Stack are gel preparation buffers for standard SDS-PAGE (Laemmli method).
EzGel Sep is a pH 8.8 separation gel buffer. It is a 4x concentrated solution; add acrylamide solution and distilled water to prepare a 1x concentration.
EzGel Stack is a pH 6.8 stacking gel buffer. It is a 4x concentrated solution; add acrylamide solution and distilled water to prepare a 1x working solution.
EzGel Sep and EzGel Stack do not contain SDS. Using an SDS-containing running buffer will enable SDS-PAGE.

※ Use prepared gels as soon as possible. Prolonged storage may cause disruption of the electrophoresis pattern.

	WSE-7150 EzGel Sep	**WSE-7155 EzGel Stack**
Volume	250mL（4xconcentrated）	250mL（4xconcentrated）
Number of use	about 2.5mL/gel	about 1.3mL/gel
Application	SDS-PAGE stacking gel	SDS-PAGE preparation gel
Strage	Room temperature 1 year	Room temperature 1 year
Code No.	2332328	2332329

※This is the volume when preparing the ATTO Mini Slab Gel (90x83mm).

WSE-7065 EzRun MOPS

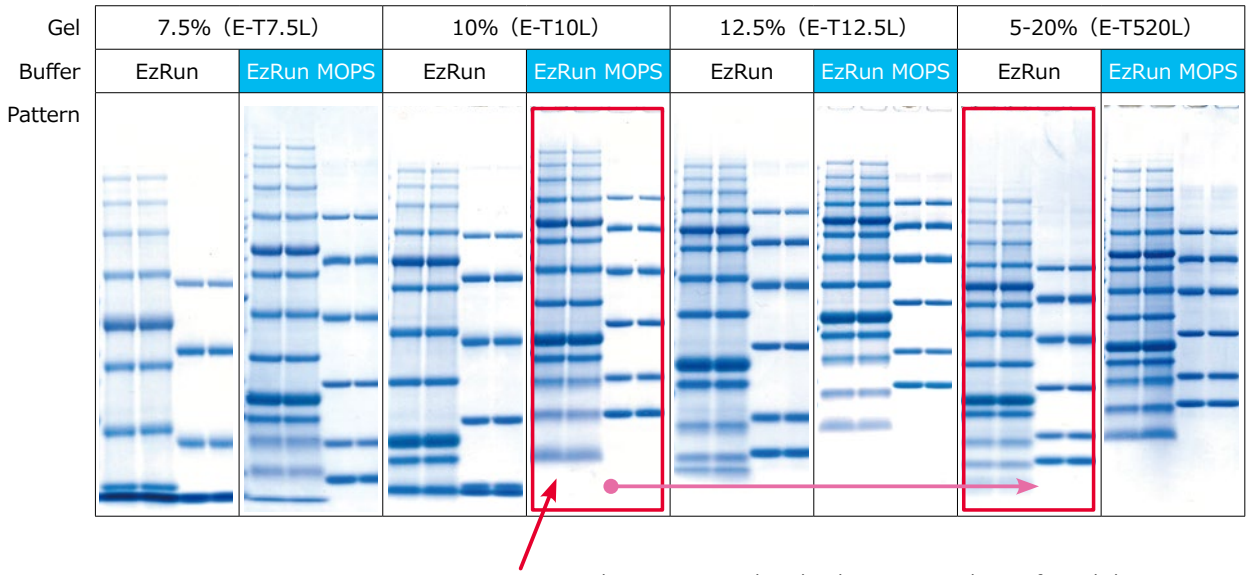
High-Speed High-Resolution SDS-PAGE Compatible Electrophoresis Buffer

- **Mini gel: 20–25 min / Compact gel: 10–15 min: High-speed electrophoresis**
- **Achieves gradient gel-level separation with uniform gels: High-resolution electrophoresis**

Comparison of Electrophoresis Patterns Between EzRun MOPS and Standard Buffer (EzRun)

EzRun MOPS is an electrophoresis buffer for SDS-PAGE. Compared to conventional SDS-PAGE buffers (such as the Laemmli method and ATTO “EzRun”), it separates bands in the low molecular weight range and achieves separation efficiency comparable to gradient gels even when using uniform gels.

EzRun : 25mM Tris/192mM Gly./0.1%SDS

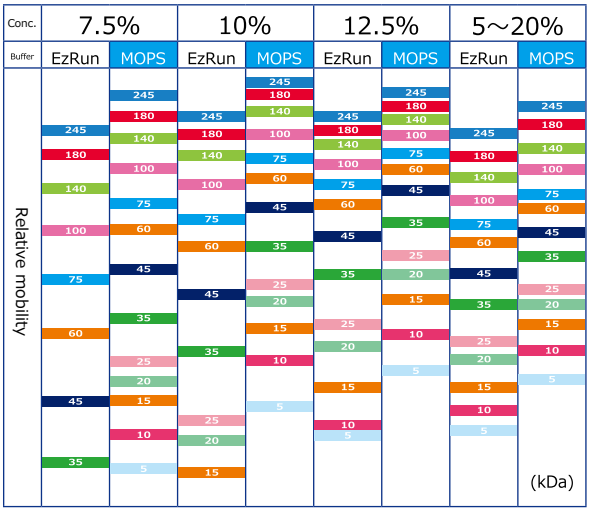


Comparing the patterns enclosed in boxes, it can be confirmed that the separation efficiency of the 10% uniform gel run on EzRun MOPS is comparable to that of the 5–20% gradient gel run on EzRun.

EzRun MOPS High-Speed Electrophoresis Conditions
When performing high-speed electrophoresis using this product, please set the electrophoresis conditions as a reference below. Electrophoresis time varies depending on gel size and gel type.

Gel size	Condition	Time
Mini-slab gel 90mmx85mmx1mm	c.v.250V	25 min
Conpact-slab gel 60mmx60mmx1mm	c.v.250V	15 min

EzRun MOPS can be used in place of conventional SDS-PAGE buffers to extend the fractionation range toward lower molecular weights on the same gel. Increasing the voltage also enables high-speed electrophoresis. For high-speed electrophoresis, using EzGel Ace to prepare your own gel yields even sharper patterns with less smearing.



※Mobility when using the ready-made gel “e-PAGEL”

	WSE-7065 EzRun MOPS	WSE-7065L EzRun MOPS
Volume	250mL 20xConcentrated (5 L)	1 L 20xConcentrated (20 L)
Preparation Method	Dilute EzRun MOPS 20 times with distilled water.	Dilute EzRun MOPS 20 times with distilled water.
Strage	oom temperature 1 year	oom temperature 1 year
Code No.	2332326	2332324

AE-1410 EzRun（Powder）AE-1411 EzRun（5L）

SDS-PAGE buffer

- SDS-PAGE electrophoresis buffer compatible with the Laemmli method
- Suitable for use with the PAGEL series
- AE-1410: Powder for 10L
- AE-1411: 5L electrophoresis buffer

EzRun is a standard SDS-PAGE electrophoresis buffer formulated according to the Laemmli method. It offers high versatility and is suitable for a wide range of protein electrophoresis applications.
The product lineup includes two types: a powder formulation sufficient to prepare 10L of buffer, and a ready-to-use 5L electrophoresis buffer type. It can be used with homemade gels as well as in combination with our ready-made gels.

	AE-1410 EzRun	AE-1411 EzRun
Volume	Powder for 10 L	5 L
Preparation method	Dilute with D.W	Ready to use
Aplication	SDS-PAGE（Laemmli）	
Gel buffer	Tris-HCl buffer （self made/precast）	
Strage	RT 2 years	RT 6 months
Code No.	2332310	2332311

AE-1412 EzRun C+

HIgh-resolution SDS-PAGE buffer

- High-resolution SDS-PAGE electrophoresis buffer
- Produces sharper bands when used with AE-1430 EzApply
- Compatible with PAGEL series
- AE-1412: 10 bags of powder, each yielding 500mL

EzRun C+ is an electrophoresis buffer for SDS-PAGE. It contains components that prevent the -SH groups of proteins from re-constituting during electrophoresis, enabling sharper electrophoresis patterns than conventional SDS-PAGE buffers.

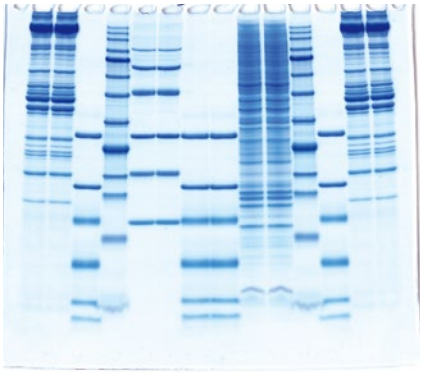
	AE-1412 EzRunC+
Volume	Powder for 500mL 10 bags
Preparation method	Dissolve in distilled water （Prepare as needed）
Aplication	High resolution SDS-PAGE
Gel buffer	Tris-HCl buffer （self made/precast）
Strage	Room temperature 1 year
Code No.	2332320

AE-1415 EzRun T

Low-molecular-Weight SDS-PAGE buffer

- Low-Molecular-Weight SDS-PAGE Electrophoresis Buffer
- Tris-Trisin Buffer
- Compatible with p-PAGEL・cp-PAGEL Neo Series for Low-Molecular-Weight Applications
- Powder for 5L x 1 bag

	AE-1415 EzRun T
Volume	Powder for 5 L
Preparation method	Dissolve in distilled water
Aplication	Low-Molecular-Weight Electrophoresis buffer
Gel buffer	Tris-Tricine buffer （self made/precast）
Strage	Room temperature 1 year
Code No.	2332325



This tricine-based electrophoresis buffer is designed for separating low-molecular-weight proteins and peptides. Separation gels must also be formulated with tricine buffer for low-molecular-weight applications.
It is used in combination with our precast mini-slab gels “p-PAGEL” or compact slab gels “cp-PAGEL Neo”.
It enables sharper separation of bands below 10 kDa compared to standard Laemmli method electrophoresis.

WSE-7066 EzRun MOPS non-SDS

MOPS-based electrophoresis buffer for nucleic acid electrophoresis

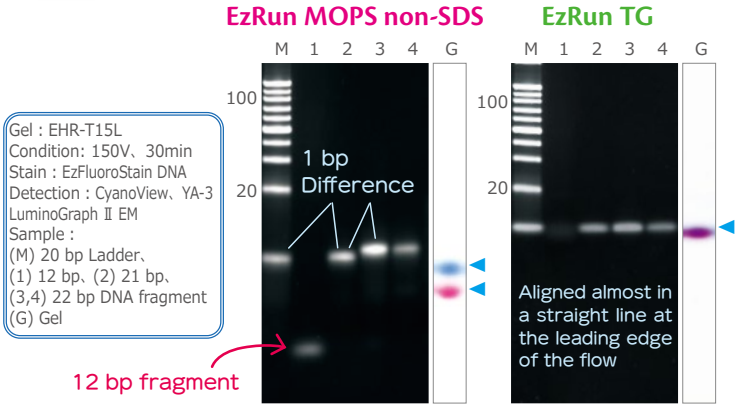
- Expands separation range for low-molecular-weight species simply by changing the buffer
- Capable of separating DNA fragments as small as 10 bp apart
- Also suitable for native PAGE/BN-PAGE of proteins
- Compatible with various commercial and homemade gels
- Can be used as a gel preparation buffer for agarose gels

	WSE-7066 EzRun MOPS non-SDS
Volume	250 mL (20xconcentrated)
Preparation method	Dilute 20 times with distilled water
Aplication	Nucleic Acid Electrophoresis Buffer Agarose Gel Preparation Buffer Native PAGE/BN-PAGE Electrophoresis Buffer
Strage	Room temperature, protected from light 1 year
Code No.	2332306

EzRun MOPS non-SDS is a 20x Tris-MOPS-EDTA buffer for separating nucleic acids and proteins using acrylamide or agarose gels. It expands the separation range on the low-molecular-weight side, enabling separation of minute DNA fragments as small as 10 bp.

It can also be used for both agarose gel preparation and electrophoresis buffering. Band separation from low to high molecular weight is sharp, with band mobility equivalent to conventional EzRun TBE or EzRun TAE. It can be used without modifying existing systems.

When performing Blue Native PAGE (BN-PAGE), add the separately sold WSE-7067 EzBlueNative Additive to the cathode-side buffer.

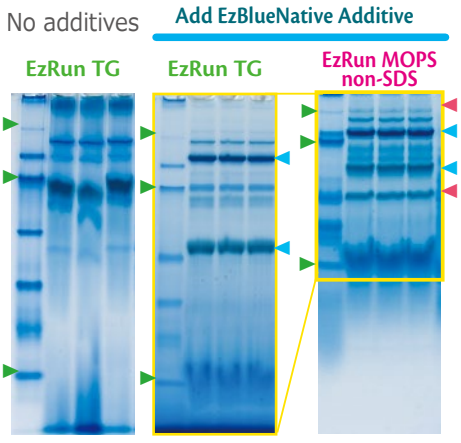


Gel : EHR-T15L
Condition: 150V、30min
Stain : EzFluoroStain DNA
Detection : CyanoView、YA-3 LuminoGraph Ⅱ EM
Sample :
(M) 20 bp Ladder、
(1) 12 bp、(2) 21 bp、
(3,4) 22 bp DNA fragment
(G) Gel

WSE-7067 EzBlueNative Additive

BN-PAGE Cathodic Electrophoresis Buffer Additive

This is a CBB-containing reagent added to the cathode electrophoresis buffer for Blue Native PAGE of proteins.



ゲル : E-T10L
Sample
・EzStandard Native
・Chroloplast
Condition:
(L) 150V、80min
(M) 150V、80min
(R) 150V、60min
Detection : EzStain AQua

Simply place it in the cathode buffer
BN-PAGE with various gels

	WSE-7067 EzBlueNative Additive
Volume	25 mL (100xconcentrated)
Preparation method	Add 1/100 volume of BN-PAGE cathode buffer
Aplication	Additives for BN-PAGE Cathode Buffer
Strage	Room temperature 1 year
Code No.	2332308

In standard Native PAGE (left, EzRun TG, no additive), electrophoresis is inhibited and band separation is unclear. However, in gels with EzBlueNative Additive (center, right), clear band separation was observed. Furthermore, gels separated using EzRun MOPS non-SDS (right) showed reduced mobility. The pink arrows indicate bands detected only in EzRun MOPS non-SDS.

WSE-7050 EzRun TAE

TAE Buffer for Electrophoresis

- **50x Concentrate 500mL: Makes 25L**
- **Final Concentration: Tris 49mM, Acetic Acid 49mM, EDTA 1mM**

WSE-7050 EzRun TAE	
Volume	500mL（50x） 25 L portion
Preparation method	Dilute 50 times with distilled water (Sterilized DNase free)
Aplication	Agarose gel electrophoresis of nucleic acids Polyacrylamide gel electrophoresis
Strage	Room temperature 1 year
Code No.	2332391

EzRun TAE is an electrophoresis buffer primarily used for nucleic acid electrophoresis. Its 50x concentrated formulation saves storage space.

WSE-7051 EzRun TBE

TBE Buffer for Electrophoresis

- **10x Concentrate 500mL: Makes 5L**
- **Final Concentration: Tris 89mM, Boric Acid 89mM, EDTA 1mM**

WSE-7051 EzRun TBE	
Volume	500mL（10x） 5 L portion
Preparation method	Dilute 10 times with distilled water (Sterilized DNase free)
Aplication	Agarose gel electrophoresis of nucleic acids Polyacrylamide gel electrophoresis
Strage	Room temperature 1 year
Code No.	2332392

EzRun TBE is an electrophoresis buffer primarily used for nucleic acid electrophoresis. It should be diluted 10-fold with distilled water before use.

WSE-7055 EzRun TG

電 Tris-Glycine Buffer for Electrophoresis

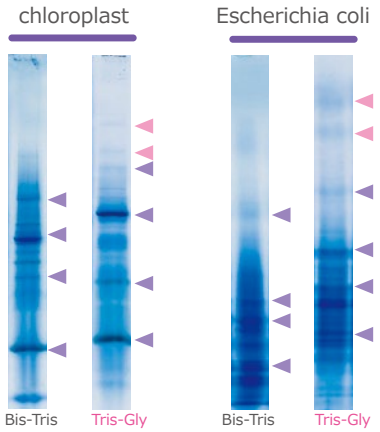
- **10x Concentrate 500mL: Makes 5L**
- **Final Concentration: Tris 25mM, Glycine 192mM**
- **Ready for Western blotting after adding methanol**

WSE-7055 EzRun TG	
Volume	500mL（10x） 5 L portion
Preparation method	Dilute 10 times with distilled water (Sterilized DNase free)
Aplication	Polyacrylamide gel electrophoresis Blotting (+methanol)
Strage	Room temperature 1 year
Code No.	2332323

EzRun TG can be used for nucleic acid electrophoresis and native protein PAGE. Dilute 10 times with distilled water before use. Add methanol to achieve a final concentration of 10–20% for use in tank-type (wet) blotting.

WSE-7056 EzRun ClearNative

Native PAGE Electrophoresis Buffer



※ ◀ The band indicated was detected only in Tris-Gly-based gels as a supercomplex.

HR-CN-PAGE

Bis-Tris Gel :
Bis-Tris CN-PAGE
Following the method of Wittig et al. (Mol Cell Proteomics, 2007)
Tris-Glycine Gel :
EzRun ClearNative

High-Resolution Clear Native PAGE (HR-CN-PAGE) is a type of Native PAGE that utilizes weak anionic surfactants to perform electrophoresis while preserving protein enzymatic activity. HR-CN-PAGE was originally developed based on Bis-Tris gels and was not suitable for Tris-Glycine-based gels.
EzRun ClearNative is a groundbreaking running buffer that enables HR-CN-PAGE on Tris-Glycine polyacrylamide gels, commonly used for SDS-PAGE, while maintaining correlation with the electrophoresis patterns obtained on Bis-Tris gels.

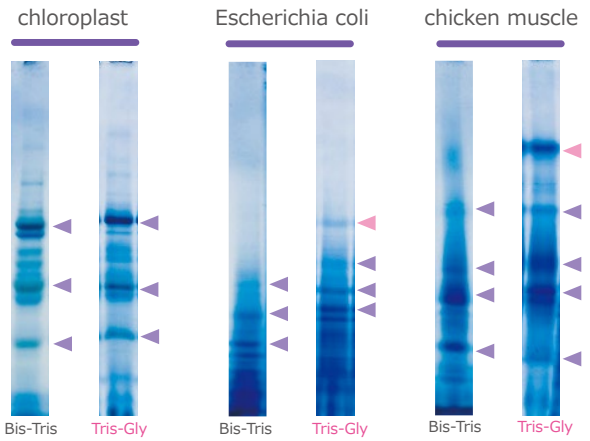
	WSE-7056 EzRun ClearNative
Volume	Anode Electrophoresis Buffer (5x) 500 mL Cathode Electrophoresis Buffer (5x) 500 mL
Application	High-Resolution-Clear-Native PAGE
Strage	Room temperature 1 year
Code No.	2332326

※ Not suitable for use with Bis-Tris or Tris-Tricine gels.

WSE-7057 EzRun BlueNative

Native PAGE Electrophoresis Buffer

BN-PAGE



※ ◀ The band indicated was a supercomplex detectable only in Tris-Gly-based gels.

Blue-Native PAGE was developed by Schägger et al. (Anal. Biochem. 1991) as a form of Native PAGE that allows protein complexes to be electrophoresed intact. Blue-Native PAGE typically employs Bis-Tris or Imidazole-based gels. These reagents and precast gels are expensive, making Blue-Native PAGE a technique perceived as having a high barrier to entry due to significant experimental costs.
EzRun BlueNative is a groundbreaking electrophoresis buffer that enables Blue-Native PAGE using Tris-Glycine polyacrylamide gels, commonly employed in SDS-PAGE. It allows for cost-effective experiments while yielding electrophoresis patterns comparable to those obtained with conventional Bis-Tris gels.

	WSE-7057 EzRun BlueNative
Volume	EzRun BlueNative 500 mL BlueNative Buffer Additive 25 mL
Application	Blue Native PAGE
Strage	Room temperature 1 year
Code No.	2332315

Protein Molecular Weight Marker Lineup

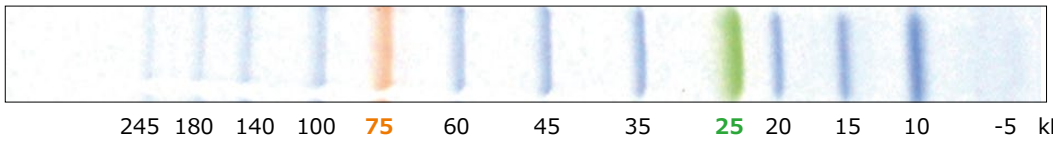
Page	Purpose	Model	Product	Shelf life	Strage temp
34	SDS-PAGE prestained ladder maker	**WSE-7020**	**EzProtein Ladder**	1 year	-20℃
34	SDS-PAGE・WB prestained ladder maker with antibody binding site	**WSE-7023**	**EzProtein Ladder WB**	1 year	-20℃
35	SDS-PAGE standard maker	**WSE-7015**	**EzStandard Ⅱ**	1 year	-20℃
35	Native PAGE maker	**WSE-7016**	**EzStandard Native**	1 year	-20℃
36	LMW protein PAGE marker	**WSE-7025**	**EzStandard LMW**	1 year	-20℃
36	HMW ptotein PAGE maker	**WSE-7035**	**EzStandard HMW**	1 year	-20℃

Selection Guide		WSE-7020	WSE-7023	WSE-7015	WSE-7016	WSE-7025	WSE-7035	WSE-7010※
	Application	SDS-PAGE	Western Blot SDS-PAGE	SDS-PAGE	Native PAGE	Low MW SDS-PAGE	High MW SDS-PAGE	SDS-PAGE Western Blot
	Molecular weight range	245-5kDa	200-15kDa	220-14.3kDa	1,236-20kDa	29-1kDa	770-29kDa	220-14kDa
	Number of bands	13	14	7	6	6	11	8
	Volume	250μLx2	250μL	500μL	100μLx 5 5	100μL	100μLx4	600μL
	Addition amount/well	1- 5μL	2.5- 5μL	1-10μL	0.5-6μL	0.5-6μL	0.5- 5μL	5μL
	Number of times	100-250	50-100	160	100	100	100	120
Electro-phoresis	Monitoring	●	●				●	
	SDS-PAGE	●	●	●		●		●
	Native PAGE				●			
Detection	Dye staining (CBB etc.)	●		●	●	●	●	●
	Fuorescence							●
Western Blotting	Monitoring	●	●					
	Colorimetric	●	●	●	●	●	●	●
	Fluorescence	●	●					●
	Chemiluminescence		●					

※The WSE-7010 EzLabel Fluoro Neo is a fluorescent labeling reagent kit for proteins. When used to label the included markers, it enables preparation of markers with the specifications described above.

WSE-7020 EzProtein Ladder

Protein Prestained Ladder Maker



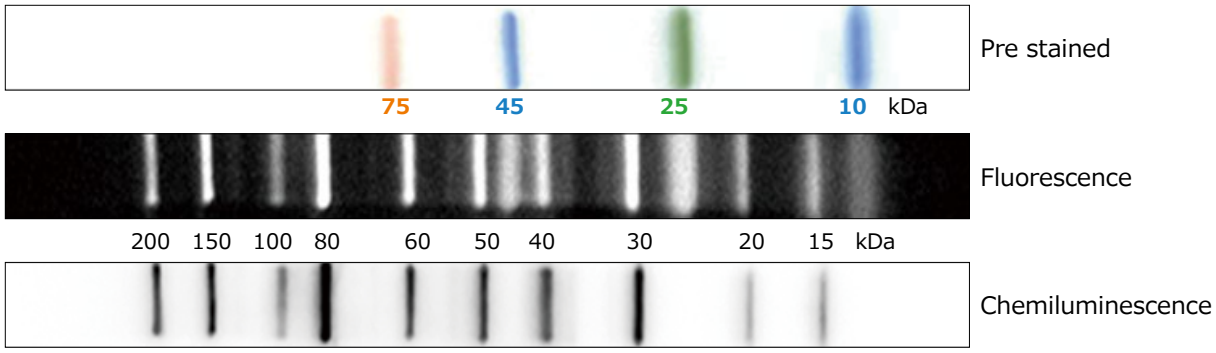
- Color prestained maker
- MW range : 245kDa-5kDa
- Number of bands : 13
- SDS-PAGE
- Western Blotting

This SDS-PAGE molecular weight marker consists of 13 bands with molecular weights ranging from 245 to 5 kDa. It offers a broad molecular weight range and is suitable for use with various gel concentrations.
The proteins are stained with a Prestain marker (colored marker): 75 kDa = orange, 25 kDa = green.

	WSE-7020 EzProtein Ladder
Stained bands Unstained bands	245/180/140/100/75/60/45/35/25/20/15/10/5 kDa 75kDa:orange 25kDa : green another : blue
Application	SDS-PAGE、Western Blotting
Detection	Visible without staining
Component	Protein 13 types, SDS, glycerin, BPB/buffer
Volume	500 μ L (250 μ Lx2) 2-5 μ L/well about 100-250 times
Strage	-20℃ 1 year
Code No.	2332346

WSE-7023 EzProtein Ladder WB

Protein Prestained Ladder Maker for Western Blotting



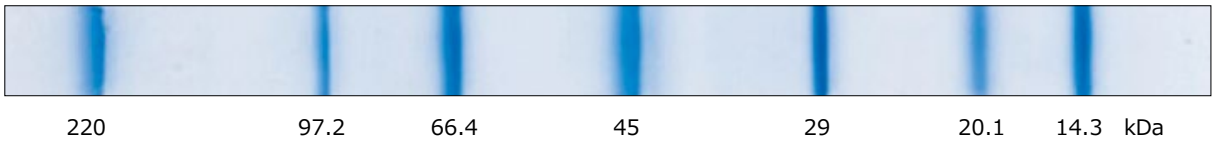
- Four prestained bands visible by blotting
- Ten unstained bands with secondary antibody binding sites
- MW range : 200kDa-10kDa
- Number of bands : 14
- SDS-PAGE
- Western blotting detection
  →Enzyme chromogenic reaction
  →Fluorescnece
  →Chemiluminescence

This product is a molecular weight marker suitable for use in Western blotting.
When used in SDS-PAGE, four colored bands are visible in the electrophoresis pattern. After blotting, four colored bands are visible on the membrane. The ten uncolored bands contain secondary antibody binding sites, enabling chemiluminescent or fluorescent detection after reacting with HRP-labeled antibodies.

	WSE-7023 EzProtein Ladder WB
Stained bands Unstained bands	75(orange)/45(blue) /25(green)/10(blue) kDa 200/150/100/80/60/50/40/30/20//15 kDa (with secondary antibody binding site)
Application	SDS-PAGE、Western Blotting
Detection	Enzyme chromogenic reaction Fluorescence , Chemilumiensence
Component	Protein 14 types, SDS, glycerin, BPB/buffer
Volume	250 μ L 2.5-5 μ L/well 50-100 times
Strage	-20℃ 1 year
Code No.	2332355

WSE-7015 EzStandard Ⅱ

Standard Protein Maker



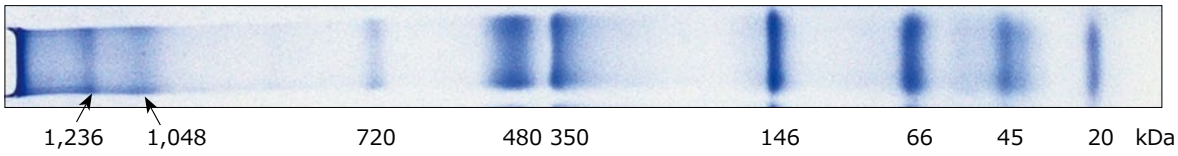
- AE-1440 EzStandard successor product incorporating 220 kDa band
- MW range : 220kDa-14.3kDa
- Number of bands : 7
- SDS-PAGE
- Detectable by CBB staining

This SDS-PAGE protein molecular weight marker consists of seven bands with molecular weights ranging from 220 to 14.3 kDa. Its broad molecular weight range allows use with various gel concentrations.
The proteins are unstained; therefore, after electrophoresis, visualization and detection are performed using methods such as Coomassie Brilliant Blue (CBB) staining, silver staining, or fluorescent staining.

	WSE-7015 EzStandard Ⅱ
Stained bands Unstained bands	220/97.2/66.4/45/29/20.1/14.3 kDa
Component	Protein 7 types, SDS, glycerin, BPB/buffe
Detection	Dye staining
Volume	500 μ L 3 μ L/well about 160 times
Strage	-20℃ 1 year
Code No.	2332341

WSE-7016 EzStandard Native

Native PAGE Protein Maker



- Detectable by CBB staining1236-20kDa
- Number of bands : 9
- Covers a wide molecular weight range
- ready to use : It's ready to apply.
- Approximately 100 runs (when using 5μL per mini slab gel)
- Native PAGE
- Detectable by CBB staining

This molecular weight marker is suitable for conventional Native PAGE, Blue Native PAGE (BN-PAGE), and High Resolution Clear Native PAGE (HR-CN-PAGE).

	WSE-7016 EzStandard Native
Stained bands Unstained bands	1.236/1,048/720/480/350/146/66/45/20 kDa
Component	Protein 9 types, glycerin, BPB/buffe
Detection	Dye staining
Volume	100 μ Lx5 5 μ L/well about 100 times
Strage	-20℃ 1 year
Code No.	2332344

WSE-7025 EzStandard LMW

LMW Protein Maker

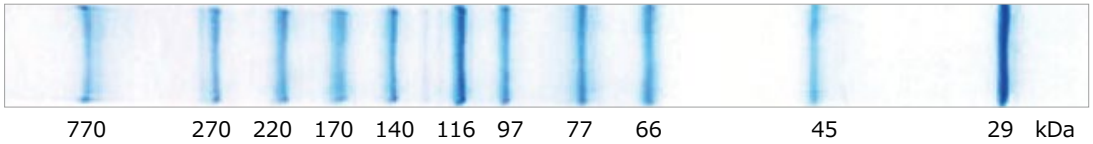
- MW range : 29kDa-1kDa
- Number of bands : 6
- Precast Gel : p-PAGEL/cp-PAGEL Neo (Tris-Tricine buffer)
- SDS-PAGE
- Detectable by CBB staining

EzStandard LMW is a molecular weight marker suitable for low molecular weight protein electrophoresis using Tris-Trisine buffer. To prepare the electrophoresis marker, reduce the peptide stock prior to use.
The prepared EzStandard LMW is stable for approximately 6 months when refrigerated . Since the proteins are unstained, visualize and detect them after electrophoresis using methods such as Coomassie Brilliant Blue (CBB) staining, silver staining, or fluorescent staining.

	WSE-7025 EzStandard LMW
Stained bands Unstained bands	29/17/14/6.5/3.5/1 kDa
Component	Protein 6 types, SDS, glycerin, DTT,BPB/buffe
Detection	Dye staining
Volume	Peptide stock（20x）: 100 μ L Sample Buffer（2x）: 10 mL Reducing agent（DTT）: 150 mg
Strage	-20℃　1 year
Code No.	2332348

WSE-7035 EzStandard HMW

HMW Protein Maker



- Including a band of 770 kDa（HMW）
- MW range : 770kDa-29kDa
- Number of bands : 11
- Covers a wide molecular weight range
- SDS-PAGE
- Detectable by CBB staining

This SDS-PAGE protein molecular weight marker covers a wide range from 770 kDa to 29 kDa. It is suitable for a broad range of applications, from electrophoresis of high molecular weight proteins using “u-PAGEL H” to general electrophoresis.
The proteins are unstained, so visualization and detection are performed after electrophoresis using methods such as Coomassie Brilliant Blue (CBB) staining, silver staining, or fluorescent staining.

	WSE-7035 EzStandard HMW
Stained bands Unstained bands	770/270/220/170/140/116/97/77/66/45/29 kDa
Component	Protein 11 types, SDS, glycerin, BPB/buffe
Detection	Dye staining
Volume	400 μ L（100 μ Lx 4） 3-5 μ L/well　about 100 times
Strage	-20℃　1 year
Code No.	2332343

Gel Staining Reagents for Proteins and Nucleic Acids

The ATTO EzStain series is a staining reagent for visualizing and detecting proteins, nucleic acids, and other substances after electrophoresis.

Page	Purpose	Model	Product	Shelf life	Strage temp
38	CBB staining reagent for protein	**AE-1340** **AE-1340L** **AE-1340LL**	**EzStain AQua (1L)** **EzStain AQua (5L)** **EzStain AQua (10L)**	1 year	RT
38	CBB staining reagent for protein (on membrane)	**WSE-7160**	**EzStain AQua MEM**	1 year	RT
39	Fluorescent DNA Staining Reagent	**WSE-7130**	**EzFluoroStain DNA**	1 year	-20℃
39	Fluorescent DNA and RNA Staining Reagent	**WSE-7135**	**EzPreStain DNA&RNA**	1 year	-20℃
40	Silver staining reagent for proteins and nucleic acids	**AE-1360**	**EzStain Silver**	2 year	Refrigerated
40	Protein Negative Staining Reagent	**AE-1310**	**EzStain Reverse**	2 year	RT
40	Centrifugal filtration tube for AE-1310 EzStain Reverse	**AB-1171**	**Attoprep MF**	–	RT

AE-1340/1340L/1340LL EzStain AQua

Organic solvent-free and acetic acid-free CBB staining solution

Microwave! 10-minute dyeing!

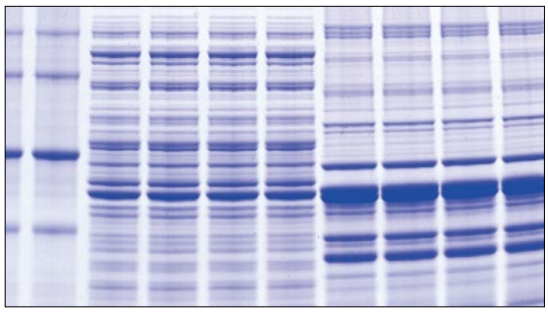
- **Acetic acid- and alcohol-free CBB staining solution**
  → **No preparation required**
- **Transparent background with vivid blue bands**
- **High-sensitivity detection in a short time**
  → **Two-step staining-and-decoloring process**
- **Decolorization possible with distilled water**

The EzStain AQua series is a protein detection solution for Coomassie Brilliant Blue (CBB) staining that contains no acetic acid or alcohol. After SDS-PAGE, simply immerse the gel in the staining solution and shake to achieve low-background, high-sensitivity CBB staining. The staining solution contains no organic solvents or acetic acid, making disposal simple.

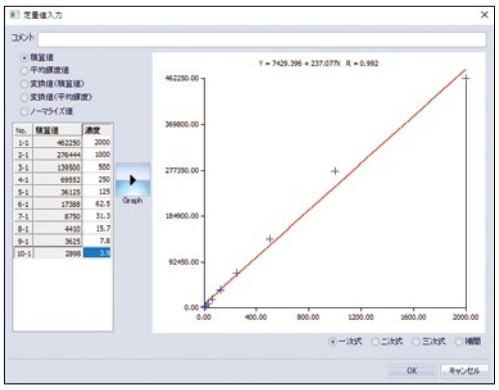
AE-1340 1L

AE-1340L 5L

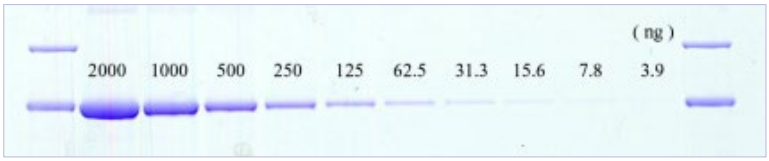
EzStain AQua			
Volume	**AE-1340 : 1 L**	**AE-1340L : 5 L**	**AE-1340LL : 10 L**
Preparation method	Ready to use		
Strage	Room temperature 1 year		
Code No.	2332370	2332371	2332372



High sensitivity・Low backgraund・High quantitative accuracy



Sample : BSA (2000ng/lane- 1/2 Dilution series)
Sample processing : EzApply（SDS-PAGE Sample Preparation Buffer)
Gel : e-PAGEL（Precast Gel)
Electrophoresis buffer : AE-1410 EzRun（Tris-Glycine-SDS)



Quantitative Analysis Using Image Analysis Software “CS Analyzer4”
The EzStain AQua staining pattern of bovine serum albumin dilution series was measured and quantified using image analysis software. Quantifying bands with sample concentrations ranging from 2000 to 3.9 ng confirmed high linearity, as shown in the figure above.

WSE-7160 EzStain AQua MEM

CBB Staining Kit for Decolorizable Membranes

- **CBB Staining Kit for Membranes**
- **Detects all proteins prior to antigen-antibody reaction**
- **Complete decolorization**
  → **Proceeds to antigen-antibody reaction**

EzStain AQua MEM is a reagent kit enabling complete decolorization and CBB staining of proteins transferred onto PVDF membranes. It allows detection of all proteins prior to antigen-antibody reactions, enabling imaging of data followed by luminescence detection (or colorimetric detection) after antibody reactions.

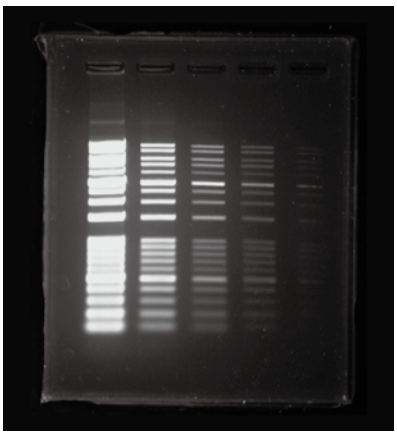
WSE-7160 EzStain AQua MEM	
Volume	Wash（2x）: 500mL Stain : 500mL de-Stain（2x）: 500mL Breach（2x）: 500mL ※ Methanol is required separately.
Strage	Room temperature 1 year
Code No.	2332375

WSE-7130 EzFluoroStain DNA

Fluorescent Staining Reagent for DNA

- Prepare staining solution with electrophoresis buffer and stain the gel
- For DNA detection only
- High-sensitivity detection using Blue to Cyan LEDs
- Low carcinogenicity and high safety

After agarose gel electrophoresis or polyacrylamide gel electrophoresis, DNA in the gel can be stained. Stained DNA can be detected using UV, Blue LED, or Cyan LED.



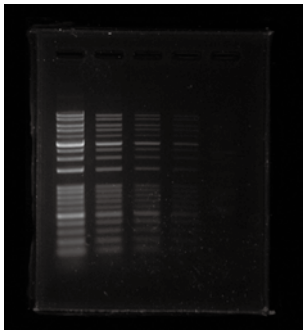
	WSE-7130 EzFluoroStain DNA
Volume	500 µ L / tube
Solvent	DMSO
Preparation method	Dilute 10,000-fold in electrophoresis buffer
Staining method	Place the gel in the staining solution and agitate for 10–30 minutes.
Application	Fluorescent Detection for DNA (Post stain only)
Exitation	470-505nm (Blue/Cyan LED) 254-312nm (UV)
Emmision	peak 522nm (500-600nm)
Strage	-20℃ 1 year (Unopened)
Code No.	2332395

WSE-7135 EzPreStain DNA&RNA

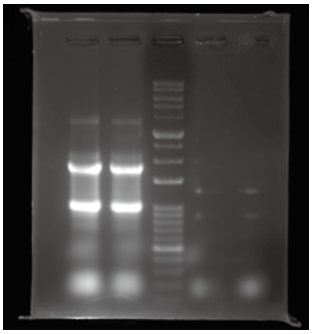
Fluorescent Staining Reagents for DNA and RNA

- Can be pre-stained by mixing with gel and electrophoresis buffer
- Prepare staining solution with electrophoresis buffer to stain gels
- Detects both DNA and RNA
- High-sensitivity detection using blue to cyan LEDs
- Low carcinogenicity and high safety

After agarose gel electrophoresis or polyacrylamide gel electrophoresis, DNA in the gel can be stained. Stained DNA can be detected using UV, Blue LED, or Cyan LED. For agarose gels, pre-staining is also possible by mixing the stain into the gel or buffer.



Example : DNA staining



Example : RNA staining

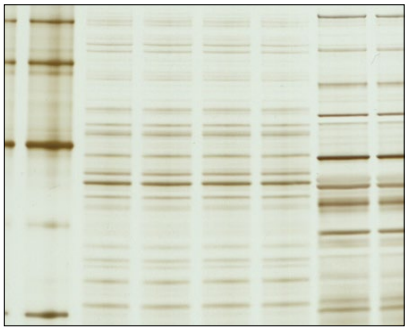
	WSE-7135 EzPreStain DNA&RNA
Volume	500 µ L / tube
Solvent	DMSO
Preparation method	Dilute 10,000-fold in electrophoresis buffer
Staining method	① Post-staining: Immerse gel in staining solution for 10–30 minutes ② Pre-staining: Add 1/10,000 volume to gel ③ Pre-staining: Add 1/10,000 volume to electrophoresis buffer
Application	Fluorescent Detection for DNA and RNA
Exitation	470-505nm (Blue/Cyan LED) 254-312nm (UV)
Emmision	peak 509nm (500-580nm)
Strage	-20℃ 1 year (Unopened)
Code No.	2332397

※Detection sensitivity is highest for ① post-staining.
※When using for pre-staining, we recommend adding it to both the gel and the electrophoresis buffer.

AE-1360 EzStain Silver

Silver Stain Kit

- **Formaldehyde-free (suitable for mass spectrometry (MS))**
- **Capable of staining proteins and DNA**
- **High-sensitivity detection (Proteins: 1 ng/band; Nucleic acids: tens of pg/band)**



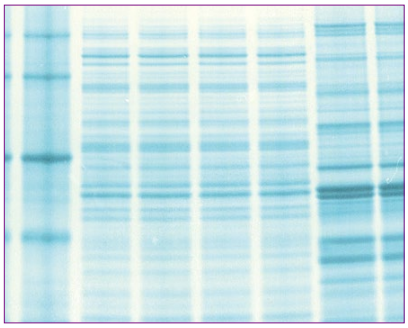
EzStain Silver is a silver staining kit that does not contain glutaraldehyde. It is used for detecting proteins and nucleic acids after electrophoresis.

	AE-1360 EzStain Silver
Volume	50 sheets of Mini Gel S-1 / S-2 / S-3 / S-4　50mL each
Staining time	55 min（1mm thick mini gel）
Strage	Store in a dark, Refrigerated　2 years
Code No.	2332360

AE-1310 EzStain Reverse

Reverse (Negative) Staining Kit

- **White staining of SDS-PAGE gel background (bands remain transparent)**
- **Enables negative staining of protein bands**
- **Ideal for band excision (use with AB-1171 ATTOprep MF)**
- **Staining time: 20–25 minutes**



Since the band is transparent and the background turns white, we placed a black sheet behind the gel for photography.

EzStain Reverse makes the background of gels opaque after electrophoresis, enabling detection of transparent protein bands.

	AE-1310 EzStain Reverse
Volume	50 sheets of Mini Gel R-1 / R-2　500mL each
Staining time	20-25 min（1mm thick mini ge）
Strage	Store in a dark, Room temperature　2 years
Code No.	2332350

AB-1171 Attoprep MF

Centrifugal filtration tube

- **50 centrifuge tubes with built-in filtration**
- **Extraction from AE-1310 EzStain Reverse staining gel**

It can be used for band excision, protein extraction, and DNA extraction from gels after electrophoresis or from gels detected with “EzStain Reverse”.

	AB-1171 Attoprep MF
Volume	50 pieces / box
Sample Addition Volume	100~500 μ L
Maximum centrifugal force	15,000xg
filtration membrane	Pore size: 0.2 μ m　Material: PES
Usable pH Range	pH1~9
Code No.	3521370

Reagents and Consumables（WB）

page	Category	Model	Product	Shelf life	Strage temp
42	Transfer pack for semi-dry blotting	**WSE-4056** **WSE-4057** **WSE-4058**	**QBlot kit C** **QBlot kit M** **QBlot kit W**	1 year	RT/Refrigerated
43	Transfer buffer	**WSE-7210**	**EzFastBlot HMW**	1 year	RT
44		**AE-1465** **AE-1460**	**EzFastBlot** **EzBlot**	1 year	RT
45	Transfer menbrane (PVDF)	**WSE-4050** **WSE-4051** **WSE-4052** **WSE-4053** **WSE-4054**	**ClearBlot P+ Membrane 65x65mm** **ClearBlot P+ Membrane 85x90mm** **ClearBlot P+ Membrane 130x140mm** **ClearBlot P+ Membrane 3mx260mm** **ClearBlot P+ Membrane 85x145mm**	–	RT
45		**WSE-4060** **WSE-4061** **WSE-4063** **WSE-4064**	**ClearBlot P Membrane LowFL 65x65mm** **ClearBlot P Membrane LowFL 85x90mm** **ClearBlot P Membrane LowFL 3mx260mm** **ClearBlot P Membrane LowFL 85x145mm**	–	RT
46	Absorbent paper	**CB-06A** **CB-09A** **CB-13A** **CB-20A**	**Blotting Absorbent Paper 65x65mm** **Blotting Absorbent Paper 85x90mm** **Blotting Absorbent Paper 130x140mm** **Blotting Absorbent Paper 200x200mm**	–	RT
46	Sealing sheet		**Pitatt Clear / Pitatt Clear L**	–	RT
47	Blocking reagent	**AE-1475** **AE-1476** **AE-1477**	**EzBlock Chemi** **EzBlock BSA** **EzBlock CAS**	2 year	Refrigerated
48	Wash buffer	**WSE-7230** **WSE-7230L**	**EzTBS（1L）** **EzTBS（5L）**	1 year	RT
48		**WSE-7235**	**EzTween**	1 year	Refrigerated
48		**WSE-7430**	**EzPBS（-）**	1 year	RT
49	CBB staining reagent for menbrane	**WSE-7160**	**EzStain AQua MEM**	1 year	RT
49	Color development reagent for HRP	**WSE-7140**	**EzWestBlue W**	1 year	Refrigerated
50	Chemiluminescent reagent for HRP	**WSE-7110** **WSE-7120S** **WSE-7120L**	**EzWestLumiOne** **EzWestLumi plus** **EzWestLumi plus**	1 year	Refrigerated
51	Stripping reagent	**WSE-7240** **WSE-7240L**	**EzReprobe（500mL）** **EzReprobe（2L）**	1 year	RT

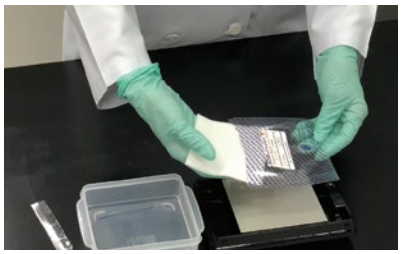
Reagents and Consumables ELISA)

page	Purpose	Model	Product	Shelf life	Strage temp
52	Color development reagent for ELISA	**WSE-7145**	**EzELISA TMB**	1 year	Refrigerated

WSE-4056/4057/4058 QBlot kit

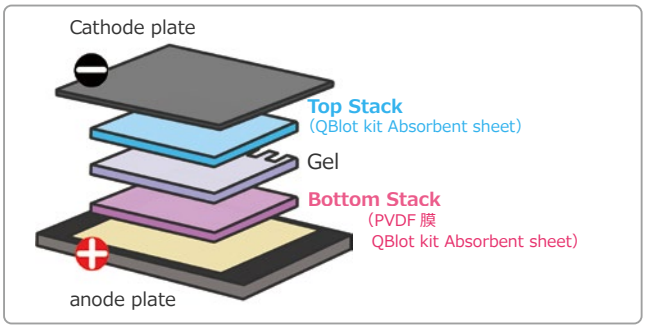
Achieve beautiful results faster　Quick & Quality = QBlot kit

- **Ready to use right out of the box!**
- **Enables rapid protein transfer up to 250 kDa!**
  24V constant voltage: 5–10 minutes
  12V constant voltage: 15–30 minutes
- **Prevents pattern loss due to bubbles!**
- **Prevents uneven transfer**
- **Freedom from tedious filter paper and membrane preparation!**
- **Alcohol-free**

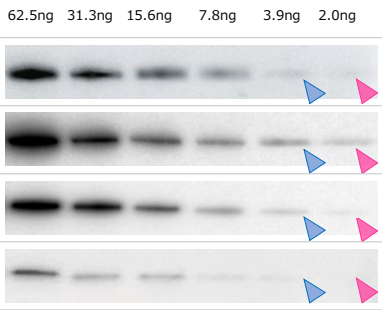


	WSE-4056 QBlot kit C	WSE-4057 QBlot kit M	WSE-4058 QBlot kit W
Size	65x65mm	90x85mm	145x85mm
Contents	Top Stack : 10 packs Bottom Stack : 10 packs Gel Wash Buffer（5x）: 100mL	Top Stack : 10 packs Bottom Stack : 10 packs Gel Wash Buffer（5x）: 100mL	Top Stack : 6 packs Bottom Stack : 6 packs Gel Wash Buffer（5x）: 100mL
Strage	1 year Top Stack : Refrigerated Bottom Stack : Refrigerated Gel Wash Buffer : Room temperature	1 year Top Stack : Refrigerated Bottom Stack : Refrigerated Gel Wash Buffer : Room temperature	1 year Top Stack : Refrigerated Bottom Stack : Refrigerated Gel Wash Buffer : Room temperature
Volume	10 times / box	10 times / box	6 times / box
Code No.	2322441	2322442	2322447

Typically, Western blotting paper or membranes require equilibration in blotting buffer. This process takes approximately 15 to 30 minutes. With the QBlot kit, there is no need for this tedious equilibration step; simply open the package and it is ready for immediate use in Western blotting.
Its dedicated blotting buffer ensures high transfer efficiency, enabling rapid, high-efficiency Western blotting. Compatible with Atto's Horizon Blot and Powered Blot Ace systems, it also works with other manufacturers' semi-dry blotting devices.
*A dedicated high-power power supply is required for high-speed blotting.



The **Bottom Stack** contains hydrophilized and equilibrated PVDF membrane & absorbent sheet, while the **Top Stack** contains an absorbent sheet soaked in transfer buffer.
Place the **Bottom Stack** on the anode plate (+) of the blotting apparatus, stack the gel and **Top Stack** on top, then place the cathode plate (-) to complete setup.



Voltage	Transfer time	Transfer buffer
24V c.v.	5min	**QBlot kit M**
24V c.v.	10min	**QBlot kit M**
24V c.v.	10min	EzFastBlot
12V c.v.	30min	self made

Gel : EHR-T520L
Blocking : EzBlock CAS、30 min
1st **antibody** : anti-Transferrin（1/5,000）
2nd antibody : HRP-labeled rabbit IgG antibody（1/50,000）
Detection : EzWestLumi plus
Imaging : LuminoGraph Ⅲ

The results show electrophoresis of human plasma proteins diluted 1/2 from 62.5 ng/lane, followed by blotting using the QBlot kit M, EzFastBlot, and a custom transfer buffer (100 mM Tris/192 mM Glycine/10% MeOH). The transferred membrane was reacted with human transferrin antibody diluted 1/5,000 and HRP-labeled secondary antibody diluted 1/50,000, and bands were detected using EzWestLumi plus.
The QBlot kit demonstrated higher transfer efficiency compared to the homemade transfer buffer. Furthermore, EzFastBlot (filter paper + high-speed transfer buffer) achieved equivalent detection with half the transfer time, while the same transfer time enabled more sensitive detection.

HMW protein transfer buffer

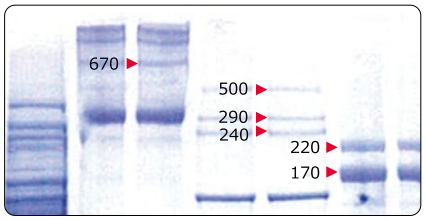
WSE-7210 EzFastBlot HMW

Achieve semi-dry polymer protein transcription difficult without a tank system!

- **High-speed transfer of proteins over 200 kDa in just 30 minutes!**
- **No methanol or surfactants—easy waste disposal!**
- **25V constant voltage for 30 minutes**
- **Enables transition from tank-type to semi-dry-type high-molecular-weight protein transfer**

	WSE-7210 EzFastBlot HMW
Volume	500mL（5x）
Preparation method	Dilute EzFastBlot HMW 5-fold with distilled water (No methanol required)
Transfer time	30-60 min
Application	High-speed transfer of proteins over 200kDa
Condition	c.v.25V (Use six sheets of absorbent paper)
Strage	Room temperature　1 year
Code No.	2332395

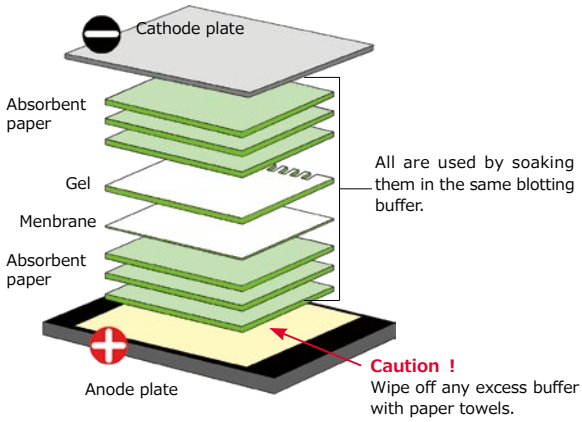
Example : Blotting High-Molecular-Weight Proteins



Condition
Buffer : EzFastBlot HMW
Absorbent paper : CB-09A
Voltage : 25V（c.v.）
Blotthing time : 30min

Protocol

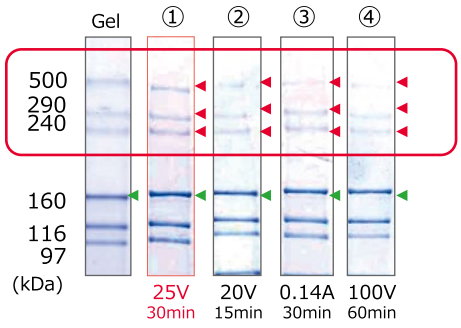
① EzFastBlot HMW Preparation: Dilute 5-fold with distilled water(No methanol required)
↓
② Prepare a PVDF membrane with a pore size of 0.2 μm or less.
③ Treat the membrane with methanol, then shake it in the transfer solution for 15 minutes.
④ Prepare six pieces of filter paper (0.9 mm thick) and soak them in the transfer solution.
↓
⑤ Laminated absorbent paper, gel, and membrane
↓
⑥ Condition : c.v 25V・30 min　blotting
↓
⑦ Blocking・antigen-antibody reaction



※ EzFastBlot HMW can be used with Atto Semi-Dry Blotting Devices,as well as other semi-dry blotting devices from other manufacturers.

・Comparison of blotting methods

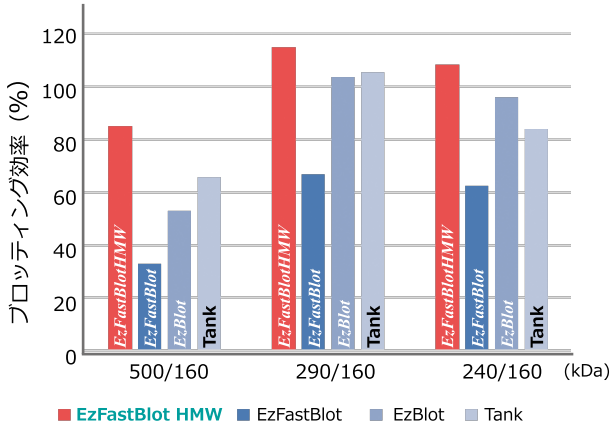
We compared three semi-dry blotting reagents with tank-type blotting. “EzFastBlot HMW” produced the most intense band at 500 kDa.



① EzFastBlot HMW	c.v.25V	30min
② EzFastBlot	c.v.20V	15min
③ EzBlot	c.c.140mA	30min
④ Tank Blot(T/G)	c.v.100V	60min

・Comparison of blotting efficiency

To compare blotting efficiency by molecular weight, we calculated the efficiency of proteins with molecular weights of 500 kDa, 290 kDa, and 240 kDa, setting the efficiency of the 160 kDa protein as 100%, and plotted the results.
EzFastBlot HMW demonstrates superior blotting efficiency for these high molecular weight proteins.



※The blotting efficiency is expressed as a relative value relative to the blotting efficiency of a 160 kDa protein, which is set at 100%.

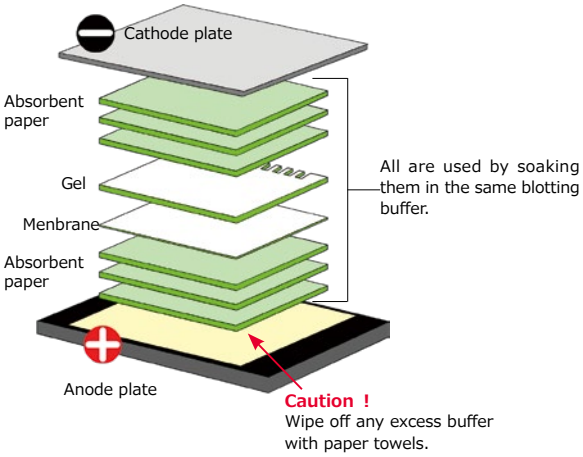
AE-1465 EzFastBlot

Transfer time: 10 minutes! High-speed semi-dry blotting reagent

- **High-speed transfer: 10 minutes**
- **Single-component system for easy filter paper and membrane setup**
- **No methanol required for easy waste disposal**
- **Enables high-speed transfer of proteins from low molecular weight to 200 kDa**

	AE-1465 EzFastBlot
Volume	500mL（10x）
Preparation method	Dilute EzFastBlot 10-fold with distilled water (No methanol required)
Transfer time	10-15 min
Condition	c.c 6mA/cm^2 or c.v 25V
Application	High-speed transfer of proteins up to 200 kDa
Strage	Room temperature 1 year
Code No.	2332518

※Please use 0.9mm thick filter paper “CB-06A/09A/13A/20A”.
※Please use the “ClearBlot P+ membrane” with a pore size of 0.2μm for PVDF membranes.



・Protocol（High-speed）
①Laminated absorbent paper, gel, and membrane
↓
②Condition : c.v 25V or c.c 6mA/cm^2 10 min
↓
③Blocking・antigen-antibody reaction

※ To detect low molecular weight proteins, add 5% methanol to the final concentration in EzFastBlot.

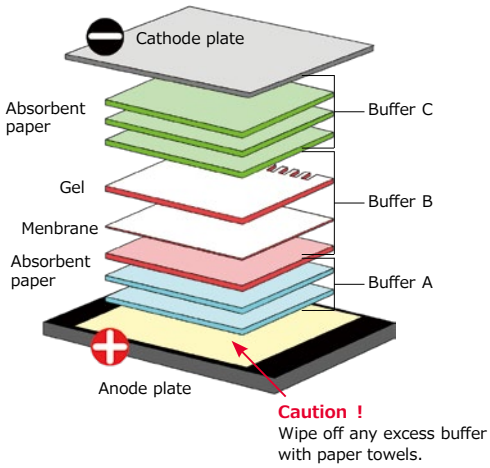
AE-1460 EzBlot

High-Efficiency Semi-Dry Blotting Reagent Kit: From Low-Molecular-Weight to High-Molecular-Weight

- **Transfer time: 30–60 minutes**
- **High detection sensitivity for low-molecular-weight proteins (peptides)**
- **Efficient transfer capability up to high molecular weights (~250 kDa)**
- **Includes disposable trays for filter paper and membrane immersion**

	AE-1460 EzBlot
Volume	Buffer A : 475mLx1 Buffer B : 475mLx2 Buffer C : 475mLx1 Disposable trayx40
Preparation method	Add 25 mL of 100% methanol to each bottle. (final concentration 5%)
Transfer time	30-60 min
Condition	c.c 2mA/cm^2
Application	Transfer proteins ranging from peptide size to 250 kDa
Strage	Room temperature 1 year
Code No.	2332600

※Please use 0.9mm thick filter paper “CB-06A/09A/13A/20A”.

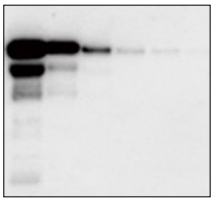


・Protocol
①Laminated absorbent paper, gel, and membrane
↓
②Condition : c.c 2mA/cm^2 30-60 min
↓
③Blocking・antigen-antibody reaction

WSE-4050-4054 ClearBlot P+Membrane

Low Background, High Sensitivity, Pre-cut" PVDF Membrane"

- **High detection sensitivity and low background**
- **Pre-cut to gel size**
- **Ideal for rapid blotting**
- **PVDF membrane with strong adsorption and retention**
- **Pore size: 0.2 μ m**



ClearBlot P+ membranes offer low background, enabling improved signal-to-noise ratio and enhanced detection sensitivity (right figure).The low background allows for excellent quantitative analysis results from the captured chemiluminescence detection images.
Use "EzBlock Chemi/BSA/CAS" for blocking.With a small pore size of 0.2 μ m, it is ideal for high-speed blotting and blotting of low molecular weight proteins.
The WSE-4054 model is for multi-lane gel sizes and includes Absorbent paper.

	WSE-4050	WSE-4051	WSE-4052	WSE-4053	WSE-4054
Material	PVDF (polyvinylidene difluoride)				
Pore size	0.2 μ m				
Cut size	65x65mm	85x90mm	130x140mm	260mmx3m	85x145mm
Quantity per pack	20 sheets	20 sheets	10 sheets	1 roll	6 sheets Absorbent paper : 36 sheets
Strage	Dark place,Room temperature,low humidity				
Code No.	2322450	2322451	2322452	2322453	2322454

WSE-4060-4064 ClearBlot P Membrane (Low-fluorescenct)

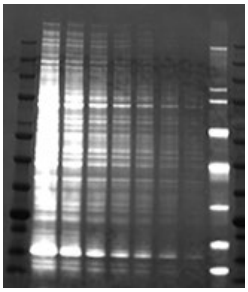
Fluorescence Detection Compatible Pre-Cut" Low-Fluorescence PVDF Membrane"

- **Ideal for total protein normalization!**
- **Fluorescence detection with low background**
- **Pre-cut to gel size**
- **Highly absorbent and retentive PVDF membrane**
- **Pore size: 0.2 μ m**

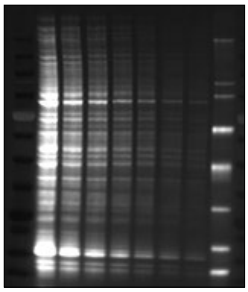
ClearBlot P membrane is a PVDF membrane for fluorescence detection. Its low autofluorescence background enables improved signal-to-noise ratio and enhanced detection sensitivity.
The WSE-4064 model is designed for multi-lane gel sizes and includes filter paper.

	WSE-4060	WSE-4061	WSE-4063	WSE-4064
Material	PVDF (polyvinylidene difluoride)			
Pore size	0.2 μ m			
Cut size	65x65mm	85x90mm	260mmx3m	85x145mm
Quantity per pack	10 sheets	10 sheets	1 roll	6 sheets Absorbent paper : 36 sheets
Strage	Dark place,Room temperature,low humidity			
Code No.	2322505	2322506	2322507	2322508

Example Fluorescent Detection Exitation : **Blue LED**



ClearBlot P + Membrane



ClearBlot P Membrane (Low-Fluorescent)

CB-06A/09A/13A/20A Blotting Absorbent Paper

0.9mm thick absorbent paper for semi-dry blotting

- **Pre-cut to gel membrane size**
- **Thickness: 0.9 mm**
- **High water absorption and retention**
- **Ideal for high-speed blotting**

CB-06A/09A/13A/20A Atto Absorbent Paper, with a thickness of 0.9mm, not only holds the blotting buffer but also maintains an appropriate distance between electrodes. This minimizes power supply errors and enables reliable blotting.
Filter paper for multi-lane gel sizes (85x145mm) is included with WSE-4054/4064 Clear Blot P+ Membrane/Clear Blot P Membrane (low fluorescence).

	CB-06A	CB-09A	CB-13A	CB-20A
Material	Main component: Cellulose			
Thickness	0.9 mm			
Cut size	65x65 mm	85x90 mm	130x140 mm	200x200 mm
Quantity per pack	400 sheets	400 sheets	200 sheets	100 sheets
Strage	Dark place,Room temperature,low humidity			
Code No.	2322437	2392393	2322436	2392493

Please use this absorbent paper with Atto's blotting reagents and blotting apparatus!

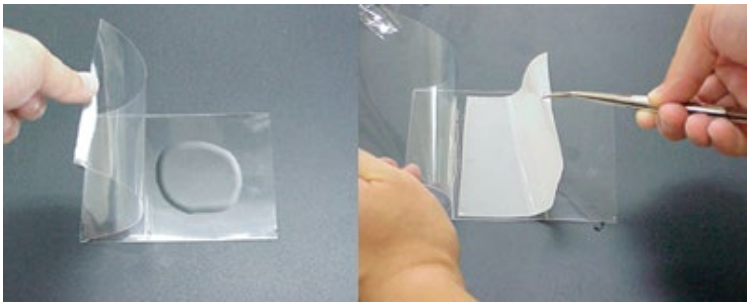
Pitatt Clear / Pitatt Clear L

Clear pocket for PVDF membrane seals during light detection

- **Sealing of Western blot luminescent membranes**
- **Handling during CBB-stained gel imaging**
- **High transparency does not interfere with detection**
- **Suitable for fluorescence detection with LED light sources**

For luminescent detection in Western blotting, this product can be used to seal membranes after adding the luminescent substrate. It protects membranes from drying without requiring sealing with a hot sealer. Its high transparency does not interfere with luminescent detection. It can also be used for handling CBB-stained gels.

	Pitatt Clear	Pitatt Clear L
Size	100x151mm	130x180mm
Quantity per pack	90 sheets	90 sheets
Strage	Room temperature	Room temperature
Code No.	2322433	2322439



AE-1475 EzBlock Chemi

Low Background & High Sensitivity Non-Protein Blocking Reagent

- Blocking for Western blotting
- Blocking for ELISA plates
- Antibody dilution
- Suitable for use with phosphorylated antibodies
- High cost performance

EzBlock Chemi efficiently blocks blotting membranes and prevents elevated background. It can be used for diluting primary and secondary antibodies, and is also suitable for diluting anti-phospho antibodies.
As a non-protein blocking agent, it can be used for immunoreactions beyond Western blotting. It offers high cost performance and is a versatile blocking reagent.

AE-1476 EzBlock BSA

Low Background & High Sensitivity BSA Blocking Reagent

- Blocking for Western blotting
- Blocking for ELISA plates
- Blocking for immunostaining
- Antibody dilution

EzBlock BSA efficiently blocks blotting membranes and prevents elevated background. It can also be used for diluting primary and secondary antibodies.
This is the most commonly used BSA-based blocking reagent.

AE-1477 EzBlock CAS

Low Background & High Sensitivity Casein Blocking Reagent

- Blocking for Western blotting
- Blocking for ELISA plates
- Blocking for immunostaining
- Antibody dilution
- High blocking power

EzBlock CAS efficiently blocks blotting membranes and prevents elevated background. It can also be used for diluting primary and secondary antibodies.
It uses casein, the most potent blocking agent in the series, making it ideal for high background situations.

	AE-1475 EzBlock Chemi	AE-1476 EzBlock BSA	AE-1477 EzBlock CAS
Blocking agent	non-protein	BSA	casein
Blocking power	++	++	+++
Application	Western blotting ELISA Dilution of antibody solution Dilution of phosphorylated antibodies	Western blotting ELISA Immunohistochemistry Dilution of antibody solution	Western blotting ELISA Immunohistochemistry Dilution of antibody solution
Preparation method	Dilute 5 times with distilled water	Dilute 5 times with distilled water Add EzTween as needed	Dilute 5 times with distilled water Add EzTween as needed
Volume	500mL (5x)	200mL (5x) EzTween-20 : 10mL	200mL (5x) EzTween-20 : 10mL
Strage	Refrigerated 2 years	Refrigerated 2 years	Refrigerated 2 years
Code No.	2332615	2332616	2332617

WSE-7230/7230L EzTBS

Wash buffer for western blotting and immunostaining

- **Wash buffer for Western blotting and immunostaining**
- **Sterile Tris-buffered saline**
- **Magnesium-free**

EzTBS is a reagent used for preparing blocking solutions and antibody diluents for Western blotting, as well as for washing blotting membranes. It can also be used as a wash buffer for immunostaining of cells and tissues.

	WSE-7230 EzTBS	WSE-7230L EzTBS
Volume	1 L（10x）	5 L（10x）
Conpornent	Tris-HCl（pH7.5）、NaCl	Tris-HCl（pH7.5）、NaCl
Preparation method	Dilute EzTBS 10 times with distilled water. Add 1/100 amount of EzTween	Dilute EzTBS 10 times with distilled water. Add 1/100 amount of EzTween
Strage	Room temperature　1 year	Room temperature　1 year
Code No.	2332624	2332623

WSE-7235 EzTween

10% Tween-20(surfactant) solution

- **10% Tween-20 solution**
- **Surfactant for adding to immunostaining wash solution**

EzTween is a surfactant solution that can be added to TBS or PBS for use in Western blotting and similar applications. It is a low-viscosity solution that is easy to pipette, and is a 10% solution—100 to 200 times the concentration typically used.

	WSE-7235 EzTween
Volume	100mL
Conpornent	Tween-20（surfactant）
Preparation method	Add 1/100 quantity of EzTween to EzTBS
Strage	Refrigerated　1 years
Code No.	2332626

WSE-7430 EzPBS（-）

Wash Buffer for western blotting and immunohistochemistry

- **Wash buffer for Western blotting and immunostaining**
- **Cell washing during protein extraction (isotonic with in vivo conditions)**
- **Calcium/magnesium-free**
- **Sterile phosphate-buffered saline (PBS)**

	WSE-7430 EzPBS（-）
Volume	1 L（10x）
Conpornent	Phosphate buffer（pH7.4）、NaCl、KCl
Preparation method	Dilute EzPBS（-）10 times with distilled water Add 1/100 amount of EzTween
Strage	Room temperature　1 year
Code No.	2332380

WSE-7160 EzStain AQua MEM

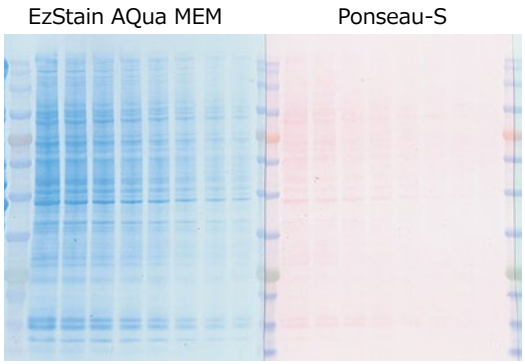
CBB Staining Kit for Decolorizable Membranes

- **CBB Staining Kit for Membranes**
- **Detects all proteins prior to antigen-antibody reaction**
- **Complete decolorization → Proceeds to antigen-antibody reaction**

EzStain AQua MEM is a reagent kit enabling complete decolorization and CBB staining of proteins transferred onto PVDF membranes. It allows detection of all proteins prior to antigen-antibody reactions, enabling data capture followed by luminescence detection (or colorimetric detection) after antibody reactions.

	WSE-7160 EzStain AQua MEM
Voluem	Wash（2x）: 500mL Stain : 500mL de-Stain（2x）: 500mL Breach（2x）: 500mL ※ In addition to the kit, methanol is required.
Strage	Room temperature　1 year
Code No.	2332375

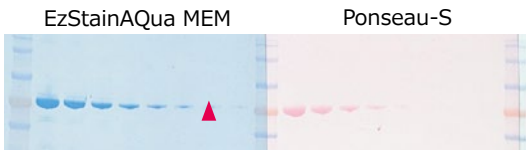
Staining of Transferred Cell Extracts



EzStainAQua MEM allows bands to remain visible throughout the entire dilution step. It also enables confirmation from high molecular weight to low molecular weight.

Gel　: m-PAGEL
Sample: Hela cell extract　3/4 dilution from 12 μg/lane (8-fold dilution)
Electrophoresis Buffer : EzRun　c.v 300V 35 min
Transfer buffer:EzFastBlot HMW　c.v24V 30 min

Staining of Transferred Transferrin



EzStainAQua MEM can detect levels from 400 to 6.25 ng.

Gel　: m-PAGEL
Sample : Transferrin　1/2 dilution from 400ng/lane (8-fold dilution)
Electrophoresis Buffer : EzRun　c.v 300V 35 min
Transfer buffer:EzFastBlot　c.v24V 15 min

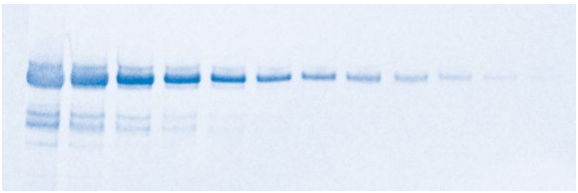
WSE-7140 EzWestBlue W

HRP Chromogenic Substrate Excellent visibility with blue bands!

- **AE-1490: The upgraded version of EzWestBlue!**
- **Enhanced sensitivity (approx. 2x)**
- **Shelf life: 1 year (previous product: 6 months)**

EzWestBlue W is a chromogenic reagent for detecting bands after HRP-labeled secondary antibody reactions. After the HRP-labeled secondary antibody reaction in Western blotting, adding EzWestBlue W causes the band regions to appear blue. Compared to the previous product “AE-1490 EzWestBlue,” it offers approximately twice the sensitivity and a doubled shelf life of up to one year. It features higher sensitivity than DAB and highly visible blue bands.

	WSE-7140 EzWestBlue W
Volume	200 mL　(for 2,000cm^2)
Usage	100 μL / cm^2
Strage	Refrigerated　1 year
Code No.	2332456



Detection image : WSE-7140 EzWestBlue W

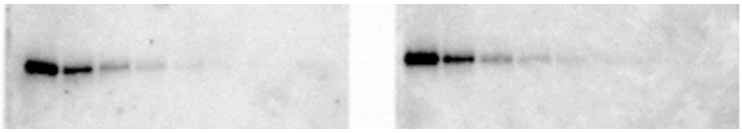
Sensitivity Comparison Between New and Old Reagents
WSE-7140 EzWestBlue W exhibits approximately twice the sensitivity compared to the previous product AE-1490 EzWestBlue under identical detection conditions.

WSE-7110 EzWestLumiOne

No mixing required! Single-component type. High cost performance.

- **Single-component type: "No mixing required!"**
- **Low background**
- **Wide dynamic range**
- **Supports long exposures up to 1 hour**

Comparison with Competitive Products



ATTO : EzWestLumiOne M : Crecendo

EzWestLumiOne is an unprecedented "single-component" luminescent substrate for HRP. Simply dispense the appropriate amount from the bottle and add it to the membrane for immediate luminescent detection. Its moderate luminescence allows chemiluminescence imaging systems to capture data with a wide dynamic range.

	WSE-7110 EzWestLumiOne
Volume	250mL （5,000cm^2 分）
Usage	0.05mL/cm^2
Sensitivity Luminescence Duration	pg Low Range・1 hour
Strage	Light-blocking Refrigerated 1 year
Code No.	2332632

WSE-7120S/7120L EzWestLumi plus

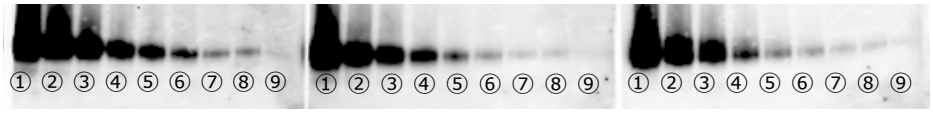
High-sensitivity detection possible! Two-component type High cost performance

- **High sensitivity (fg mid-range) detection**
- **Prevents band bleed-through**
- **Stable luminescence for 3 hours**
- **Enables antibody savings**

EzWestLumi plus is a highly sensitive HRP-specific luminescent substrate. Simply mix equal volumes from each bottle and add to the membrane for immediate luminescence detection. Its formulation prevents band ghosting and ensures stable, sustained luminescence.

	WSE-7120S EzWestLumi plus	WSE-7120L EzWestLumi plus
Volume	50mLx2 (for 2,000cm^2)	250mLx2 (for 10,000cm^2)
Usage	0.05mL/cm^2	
Sensitivity Luminescence Duration	fg mid range・3 Hours	
Strage	Light-blocking Refrigerated 1 year	
Code No.	2332637	2332638

Comparison with Competitive Products



ATTO : EzWestLumi plus M : WBKLS0100(Immobilon) C : RPN2232(Prime)

Sample : human Transferin
①500 pg②250 pg③125 pg
④62.5 pg⑤31.3 pg⑥15.6 pg
⑦7.8 pg⑧3.9 pg⑨2 pg

Sample: Transferrin 500pg/Lane~1/2 dil.
EP : GEL E-R10L, cv300V, 30min
Transfer : FastBlot, cv25V, 3A, 15min
Blocking : EzBlockCAS, 30min,RT
1stAB : 1/4,000 dil, O/N, 4℃
2ndAB : 1/40,000 dil, 2~3h, RT

	ATTO EzWestLumi plus	M : WBKLS0100(Immobilon)	C : RPN2232(Prime)
Volume	50mLx2 (100mL)	50mLx2 (100mL)	50mLx2 (100mL)
Usage	**0.05mL**/cm^2	0.1mL/cm^2	0.1mL/cm^2
Sensitivity	+++ (fg mid range)	+++ (400fg)	+++ (fg mid range)
Duration	3 hours	3 hours	3 hours

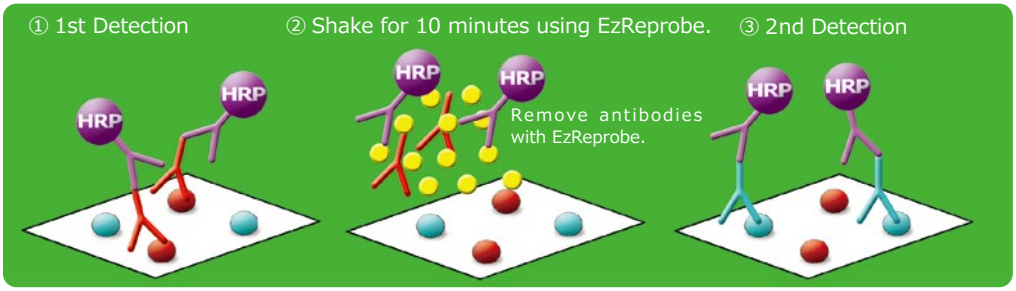
※The usage amount is calculated based on the information provided in each product's manual.

WSE-7240/7240L EzReprobe

Room temperature: Reproving complete in 5 to 15 minutes!

- **Background levels remain low after re-probing.**
- **Stripping takes as little as 5 minutes! (Typically 10–15 minutes)**
- **With the addition of an enhancer, even high-titer antibodies like those from rabbits can be stripped.**

EzReprobe is a reagent for stripping primary and secondary antibodies from Western blots. After stripping, blocking, and antibody reaction, detection of different bands becomes possible. It can be used for detecting multiple antibodies or evaluating antibody reaction conditions.

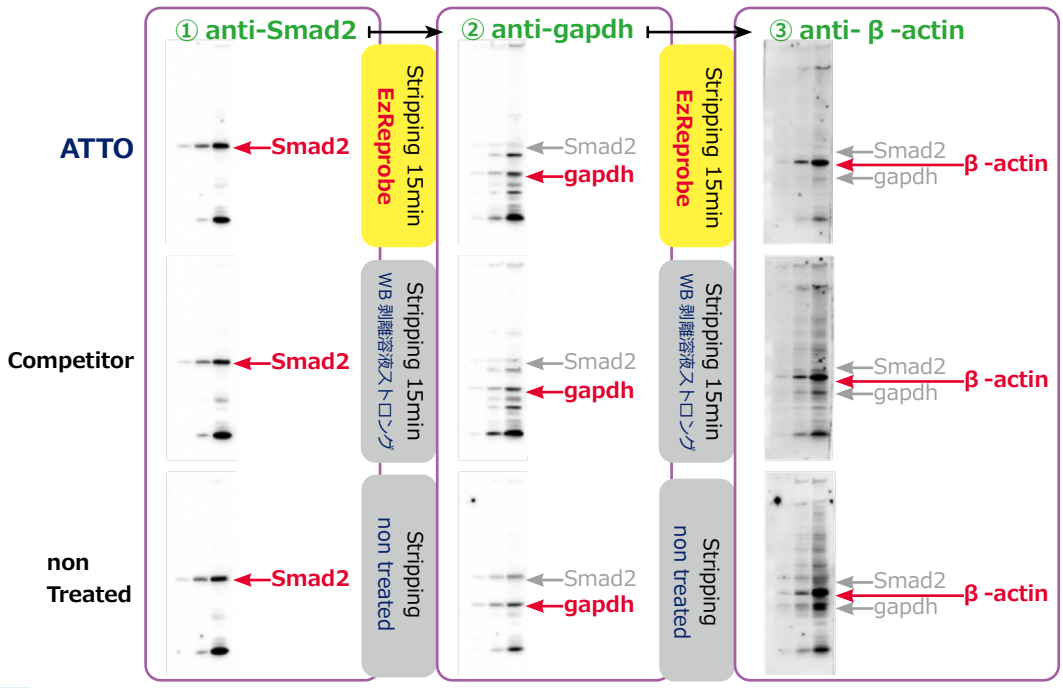


	WSE-7240 EzReprobe	WSE-7240L EzReprobe
Volume	EzReprobe 500mL enhancer 3g (Powder)	EzReprobe 2 L enhancer 12g (Powder)
Usage	Approx. 30 mL/mini-gel size membrane	Approx. 30 mL/mini-gel size membrane
Protocol	① Wash the membrane after luminescence detection with TBS-T. ② Add 0.6 g of enhancer per 100 mL of EzReprobe and dissolve. (stable for 2 weeks in the refrigerator) ③ Incubate with EzReprobe for 5–15 minutes at room temperature with gentle shaking. ④ Wash with TBS-T. ⑤ Proceed to the next antibody reaction.	
Strage	Room temperature 1 year	Room temperature 1 year
Code No.	2332530	2332531

Note: After adding the enhancer, store refrigerated. It remains stable for approximately two weeks.

■ **Comparison of EzReprobe with Competitor Products** (non treated = No stripping process)

Protocol : After separating human cell extracts by SDS-PAGE and blotting, we reacted them with three types of antibodies.
Stripping : Room temperature shake for 15 min
1st antibody : ① Smad2 →② gapdh →③β -actin blockin : AE-1475 EzBlock Chemi
Detection : WSE-7120 EzWestLumi plus Imaging : LuminoGraph Exposure time : 1 min



Using EzReprobe for stripping efficiently removes the primary and secondary antibodies from the membrane, enabling clear bands to be detected with subsequent antibody detection.

With the competitor's reagent, non-specific bands are detected because residual antibodies remain.

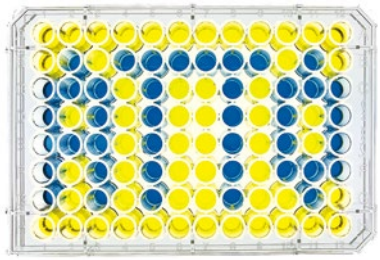
Without stripping, overlapping bands from multiple antibodies are detected.

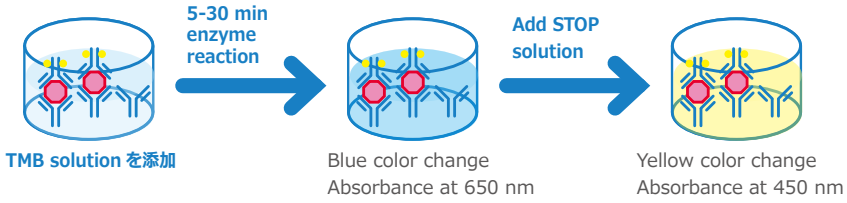
WSE-7145 EzELISA TMB

Reaction Stop Solution Included ELISA Chromogenic Reagent

- Chromogenic Reagent and Stop Solution Set
- High-Sensitivity Chromogenic Reagent TMB for HRP
- High Dynamic Range
- During Reaction: Blue Color Development
- After Stopping: Yellow Color Development

EzELISA TMB is an HRP (horseradish peroxidase) colorimetric detection reagent for ELISA. It is a ready-to-use, single-component formulation based on the TMB (3,3',5,5'-tetramethylbenzidine) substrate, suitable for rapid and highly sensitive detection. A reaction stop reagent (sulfate-free) is also included, making it truly ready to use. The procedure is simple: just add the TMB solution to the ELISA plate after the antibody reaction is complete.





	WSE-7145 EzELISA TMB
Volume	TMB solution : 200mL STOP solution : 200mL
Usage	100 μ L/well
Detection	Reaction time : 5-30 min
Measurement	Before reaction cessation : 620-650nm/Absorbance After reaction cessation : 450nm/Absorbance
Strage	Light-blocking Refrigerated 1 year
Code No.	2332458

High-Sensitivity Detection: Resistant to saturation with a wide dynamic range!

Figure 1 shows that EzELISA TMB exhibits higher detection sensitivity and signal-to-noise ratio compared to other HRP chromogenic substrates. Figure 2 presents the detection results for albumin using a sandwich ELISA. EzELISA TMB demonstrates detection sensitivity comparable to ultra-high-sensitivity detection reagents from other companies, while also showing that absorbance does not saturate at high concentrations, indicating a wide dynamic range. Figure 3 shows a calibration curve created using EzELISA TMB to detect a 1/4 dilution series of rabbit IgG starting from 20 ng/mL via an indirect ELISA method. Various blocking reagents were used, but regardless of the blocking reagent employed, EzELISA TMB consistently demonstrated a linear dynamic range exceeding four orders of magnitude.

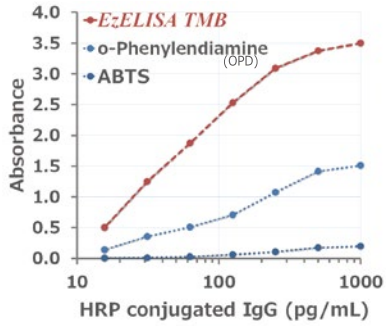


Figure 1 :
Comparison of Detection Sensitivity with Other Substrates

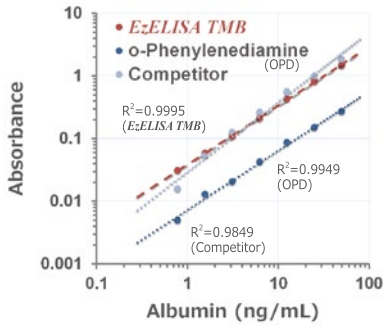


Figure 2 :
Comparison of Detection Sensitivity with Competitor Products

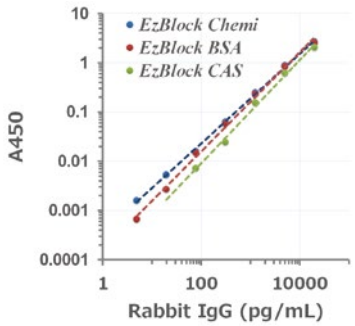


Figure 3 :
Blocking reagents and dynamic range

AB-2970 CLETA-S

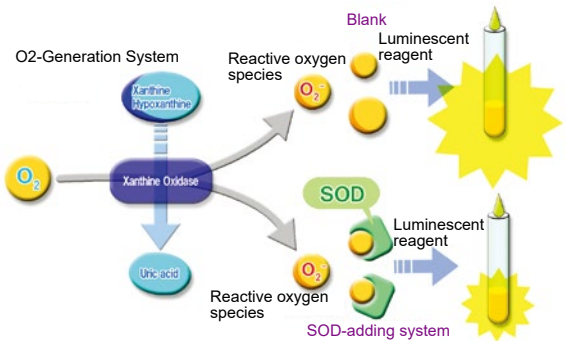
Antioxidant Capacity Assay Kit

- **Superoxide generation system set (enzyme and substrate)**
- **MPEC that emits light upon reacting with superoxide**
- **Measuring superoxide reduction via light emission = antioxidant capacity**

The “CLETA-S” is an antioxidant capacity measurement kit combining a reagent for the superoxide generation system via xanthine-xanthine oxidase and the luminescent reagent “MPEC” for superoxide detection.
This kit can be used to measure the SOD activity of antioxidant substances.

	AB-2970 CLETA-S
Volume	Luminescent reagent : MPEC 1mL Substrate : Xanthine 20mL Enzyme solution : Xanthine Oxidase 8mL Enzyme dilution solution : HEPES 8mLx2
Strage	MPEC : -20℃ Substrate : Refrigerated Enzyme solution : 4℃ Enzyme dilution solution : 4℃
Code No.	3512011

Principle of Antioxidant Capacity Measurement



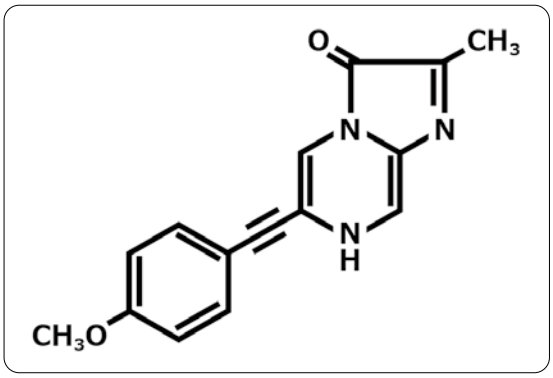
When xanthine solution is added to a xanthine oxidase solution (in the presence of oxygen O_2) containing the luminescent reagent MPEC, the generated O_2^- reacts with MPEC, causing luminescence. The luminescence level without antioxidants is set as the baseline (100%). The reduction in luminescence achieved by adding antioxidants is measured as an indicator of antioxidant capacity.
When evaluating the performance of multiple antioxidant candidates, first determine the concentration at which the luminescence inhibition rate reaches 50% for each substance. Comparing these concentrations, substances achieving a 50% inhibition rate at a lower concentration are considered to possess higher antioxidant capacity.

AB-2950 MPEC

Superoxide Detection Luminescence Reagent

- **MPEC that emits light upon reacting with superoxide**
- **5mg powder**

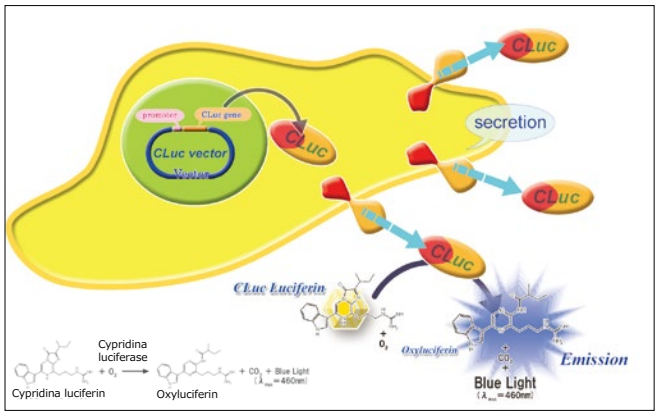
	AB-2950 MPEC
Volume	5mg (Powder)
Material	2-Methyl-6-(p-methoxyphenyl)ethenylimidazopyrazinone
Molecular weight	279.1
Strage	-20℃
Code No.	3512010



CLuc Reporter Assay Kit

Measuring gene expression using luciferase secreted into the culture medium

- A gene expression measurement method using the secreted luciferase" CLuc" as a reporter
- Time-course measurements are possible by collecting culture medium at regular intervals
- CLuc is a highly stable enzyme with excellent luminescence efficiency



AB-2550 KronosDio

WSL-1565 KronosHT

□Luminescence measurement apparatus
Please use a luminometer for CLuc measurements.

CLuc is a secreted luciferase derived from the sea firefly (Cypridina noctiluca). When genetically introduced CLuc is expressed, it is rapidly secreted into the culture medium. Collecting the culture medium and adding a luminescent substrate (CLuc luciferin) causes it to emit blue light.
This allows for gene expression measurement without preparing cell lysates, enabling time-course measurements. Gene expression vectors are available for both animal cells and yeast.

	CL-M100/1000 CLuc Reporter Assay kit for Animal Cells	CL-Y100/1000 CLuc Reporter Assay kit for Yeast
Contents (Strage)	CL-VM1 Promoterless vector for animal cells (-20℃) CL-VMC1 Control vector for animal cells (-20℃) CLuc Luminescent substrate (-80℃) CLuc Luminescent substrate dissolution preservation solution(Refrigerated) CLuc Luminescent substrate dissolution solution(Refrigerated) CLuc Standard enzyme (-80℃) CLuc Standard enzyme dissolution solution (Refrigerated)	CL-YM1 Promoterless vector for yeast (-20℃) CL-YMC1 Control vector for yeast (-20℃) CLuc Luminescent substrate (-80℃) CLuc Luminescent substrate dissolution preservation solution(Refrigerated) CLuc Luminescent substrate dissolution solution (Refrigerated) CLuc Standard enzyme (-80℃) CLuc Standard enzyme dissolution solution (Refrigerated)
Expiration date	1 year	1 year
Code No.	CL-M100:3512037 / CL-M1000:3512038	CL-Y100:3512039 / CL-Y1000:3512040

For vector sequence (nucleotide sequence) information, please contact ATTO Co., Ltd. Text data is available upon request.
Text data can be downloaded from the product page on our website.

References

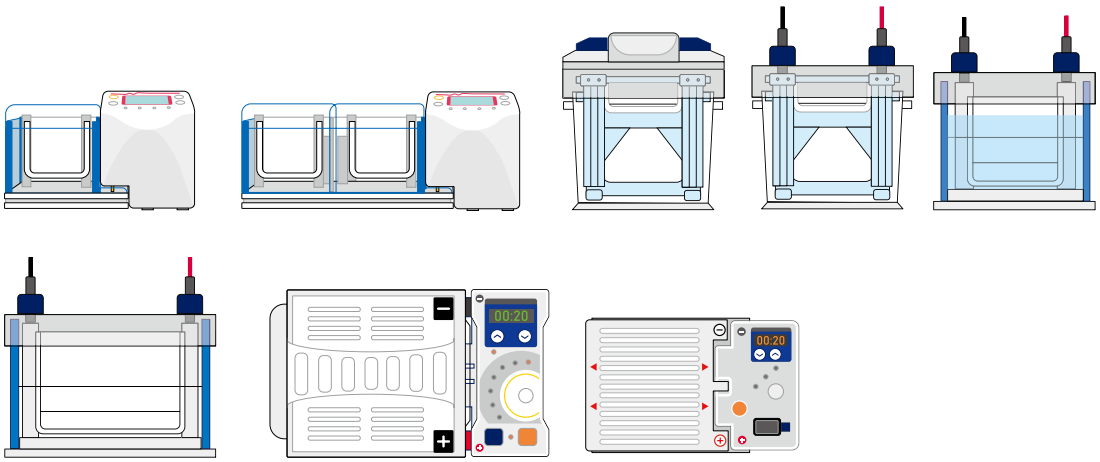
1) Nakajima, Y., Kobayashi, K., Yamagishi, K., Enomoto, T., and Ohmiya, Y. (2004) cDNA Cloning and Characterization of a Secreted Luciferase from the Luminous Japanese Ostracod, Cypridina noctiluca. Biosci. Biotechnol. Biochem., 68(3), 565-570

2) Yamagishi, K., Enomoto, T., and Ohmiya, Y. (2006) Perfusion-culture-based secreted bioluminescence reporter assay in living cells. Anal. Biochem., 354(1), 15-21

3) y.nakajima, y.ohmiya「Application of Luminescence Imaging to Real-Time Gene Expression Analysis」 Biotechnology Journal Vol.6, No.2, 230-232 (2006)

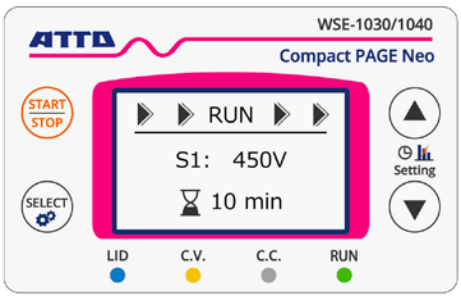
4) Wu, C., Suzuki-Ogoh, C. and Ohmiya, Y. (2007)Dual-reporter assay using two secreted luciferase genes. BioTechniques., 42, 290-292

ATTO Electrophoresis System Series



WSE-1030/1030W CompactPAGE Neo
WSE-1040/1040W CompactPAGE Neo

Precast gel	Page
c-PAGEL Neo cp-PAGEL Neo	P11
Electrophoresis buffer	**Page**
EzRun MOPS	P28



WSE-1030/1040 Control Panel

The Compact PAGE Neo is an integrated electrophoresis system packed with all the electrophoresis expertise Atto has cultivated over the years. Its dedicated compact-size gel (60x60 mm) accommodates both homemade and precast gels, supporting various electrophoresis conditions such as SDS-PAGE and Native PAGE.
The small gel size, which can be held in one hand, offers exceptional handling and reduces the amount of reagents needed, such as running buffers and antibodies, as well as the amount of sample required for electrophoresis.
Choose from two models of the Compact PAGE Neo to suit your application and purpose: the single-type (WSE-1030) capable of running one gel, or the twin-type (WSE-1040) capable of running two gels simultaneously.

	WSE-1030 CompactPAGE Neo	**WSE-1040 CompactPAGE Neo**
Number of gels	**1**	**1 or 2**
Gel size	60(W)x62mm(H) T: Compatible with 1mm/0.75mm Plate size 76(W)x70mm(H)　Total 4-5mm	
Compatible gel plate	Self-made gel　(total 5mm thick) **c-PAGEL Neo/cp-PAGEL Neo**（total 5mm thick ）	
Buffer volume	245mL（upper:135mL/ lower:110mL）/ gel	
Run mode	constant voltage（C.V.）: 150V / 250V / 450V（with slow start functon（ON/OFF）） constant current（C.C）: 10mA / 20mA / 40mA	
Timer	1-90min count down（Timer off（HOLD）: count up ） When timer ends: Alarm sounds, output stops	
Dimensions /Weight	204(W)x70(D)x130mm(H) / 0.63kg	302(W)x70(D)x130mm(H) / 0.94kg
Power supply	AC adapter(24VDC/2.5A)　100-240V 50/60Hz　56W	
Accessories	Wedge-shaped plate clamp x 1	Wedge-shaped plate clamp x 2

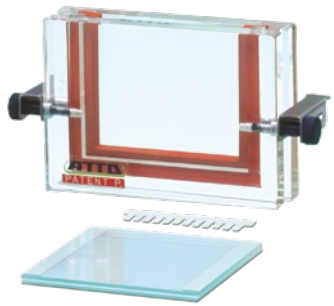
Code	Product	Quantity
2322252	WSE-1030 CompactPAGE Neo	1
2322254	WSE-1030W CompactPAGE Neo (with Gel Maker)	1 set
2322272	WSE-1040 CompactPAGE Neo	1
2322274	WSE-1040W CompactPAGE Neo (with Gel Maker)	1 set
2322251	Plate clamp (WSE-1010/25/30/40) 2-pack	1
2393689	AC adapter（24V 2.5A）for WSE-1030/40	1

※ Please purchase the glass plate and comb separately.

WSE-1091 Compact Gel Prepartor

Single-sheet Compact Gel Maker

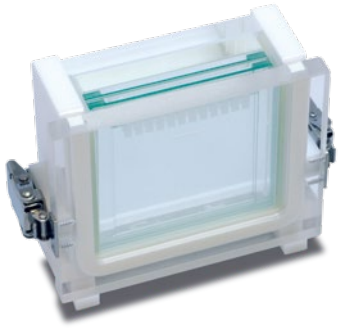
Gel preparation buffer	Page
WSE-7310 EzGel Ace WSE-7155 EzGel Stack WSE-7150 EzGel Sep	P27



	WSE-1091 Compact Gel Maker
Gel size	**60(W)x62mm(H)　T : 1 mm**
Number of cleate Gel	**1**
Plate	CAB-10x1 / CB-00x1 76(W)x70mm(H) total 5 mm thick
Comb	CP10-12 x 1
Dimension weight	93(W)x45(D)x75mm(H)・0.2kg

WSE-1092 Multiple Compact Gel Maker

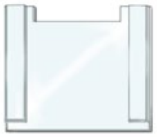
Compact Gel Maker for 2-4 Gels



	WSE-1092 Multiple Compact Gel Maker
Gel size	**60(W)x62mm(H)　T : 1 mm**
Number of prepared gels	**Standard 2（Max 4 : Additional options required）**
Plate	CAB-10x2/CB-00x2 size 76(W)x70mm(H) Toral : 5 mm
Comb	CP10-12x2
Accessories	Space Plate : 6　Dummy plate : 1 Silicon plate（22x71mm）: 2　Set on the body Silicon plate（22x80mm）: 1　Set on the body
Dimension weight	76(W)x48(D)x130mm(H)・0.45kg

Glass plate for Compact Gel

	Glass plate for compact gel	Quantitiy
Gel size	60(W)x62mm(H)　T : 1 mm	
CAB-10	Concave　76(W)x70mm(H)　spacer:1 mm(T)	2
CB-00	Square　76(W)x70mm(H)	2



CAB-10 Concave Plate

Comb for Compact Gel

Type	Well	Thick	Well width	Between wells	Well depth	Comb width	Apply volume	Material
CP10-12	12	1.0mm	2.9mm	1.6mm	6mm	59mm	13μL	Polypropylene
CP10-15	15	1.0mm	2.0mm	1.5mm	7mm	58mm	9μL	Polypropylene
2D-Flat	-	2.5mm		57(W)x15mm(H)				Acrylic

The 2D-Flat is a flat-type comb, so it does not form wells in the gel.

CP10-12

CP10-15

code	Product	Quantity
2393682	WSE-1091 Compact Gel Maker	1 set
2393684	WSE-1092 Murliple Compact Gel Maker	1 set
2393690	CP-10 Plate set (CAB-10/CB-00)	1 set
2393691	CAB-10 Concave plate	Set of 2
2393637	CB-00 Square plate	Set of 2
2393695	CP10-12 Smilingless Compact Comb	Set of 2
2393697	CP10-15 Smilingless Compact Comb	Set of 2
2394060	Dummy plate（for Compact Gel Maker）	1
2394062	Space plate（for Compact Gel Maker）	Set of 3
2394065	Compant Flat Comb for 2D/EP	Set of 2

WSE-1150P PageRun Ace

Space-Saving Electrophoresis Unit with Power Supply for Mini-Slab Precast Gels

WSE-1150M/1150MW PageRun Ace

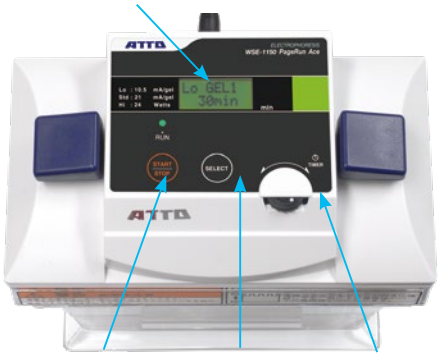
Space-Saving Electrophoresis Unit with Power Supply for Mini-slab Self-made Gels

With PageRun Ace, you can reduce electrophoresis time from the conventional 70 minutes to as little as 20 minutes!
Using the EzRun MOPS electrophoresis buffer, which enhances the resolving power of mini-slab gels, and the ready-to-use e-PAGEL HR gel enables “high-speed, high-resolution electrophoresis.” Try the PageRun Ace mini-slab electrophoresis system with power supply, which handles everything from conventional Tris-Glycine buffer electrophoresis to the latest high-speed, high-resolution electrophoresis.

Electrophoresis buffer	Page
WSE-7065 EzRun MOPS	P28
Precast gel	**Page**
u-PAGEL H / p-PAGEL e-PAGEL HR / e-PAGEL	P7-10

AC adaptor（24V/1.5A）

Run mode
Hi GEL1/Hi GEL2 for protein/High speed
Std GEL1/Std GEL2 for protein/STD
Lo GEL1/Lo GEL2 for Nucreic acid



START/STOP　Mode select　Set timer

The electrophoresis chamber body is common to the AE-6530 Rapidas Minislab Electrophoresis.
Precast gel e-PAGEL series and self-made gels are available.

Select the appropriate mode based on the sample type (protein/nucleic acid) and buffer type.

	WSE-1150MPageRun Ace	**WSE-1150PPageRun Ace**
Number of Gels	**1 / 2**	**1 / 2**
Gel size	90(W)x85 mm(H)　T : 1mm Plate size 120(W)x102mm(H) Total thick 7mm	90(W)x88 mm(H)　T : 1mm Plate size 120(W)x100mm(H) Total thick 5mm
Gel plate	Self-made gel　(total 5mm thick ）(total thick 7mm) MAB-10/MB-00	**e-PAGEL/e-PAGEL HR**（total thick 5mm) MAB-12/MB-02（WSE-1190 用）
Plate holder	AE-6530M/H（for self-made gel)	AE-6530P/H（for precast gel)
Dummy plate	DP-7（T:7mm)	DP-5（T:5mm)
Buffer volume	500mL（Upper:80mL/Lower:420mL)	
Run mode	GEL1 : Hi=24W　Std=cc21mA　Lo=cc10.5mA GEL2 : Hi=24W　Std=cc42mA　Lo=cc21mA	
Timer	1-250min count down（Timer off:-Counting up to 999 minutes) When timer ends: Alarm sounds, output stops	
Dimensions /Weight	164(W)x94(D)x193mm(H)　0.74kg	
Power Supply	AC adaptor (24VDC/1.5A)　100-240V 50/60Hz　60VA	
Accessories	Plate holder for self-made gel : 2 DP-7 Dummy plate : 1	Plate holder for precast gel : 2 DP-5 Dummy plate : 1

Code	Product	Quantity
2321670	WSE-1150P PageRun Ace (for precast gels)	1 set
2321650	WSE-1150M PageRun Ace (for self-made gels)	1 set
2321651	WSE-1150MW PageRun Ace (with Gel Maker)	1 set
2393726	AE-6530M/HPlate holder (for self-made gels)	Set of 2
2393731	AE-6530P/H Plate holder (for precast gels)	Set of 2
2393074	DP-5 Dummy plate (for precast gels)	1
2398247	DP-7 Dummy plate (for self-made gels)	1

The only precast gel compatible with the WSE-1150 is the ATTO PAGEL series.

AE-6530P Rapidas Minislab Electrophoresis
for Precast gels (PAGEL series)

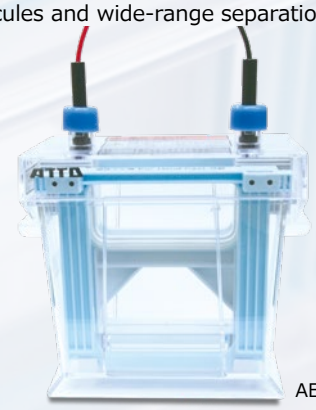
AE-6530M/6530MW Rapidas Minislab Electrophoresis
for Self-made gels/for Self-made gels with gel maker

- **Minislab Electrophoresis with the best cost performance**
- **Electrode reversal prevention feature (automatic polarity switching mechanism)**
- **Supports high-speed, high-resolution electrophoresis**

Electrophoresis buffer	Page
WSE-7065 EzRun MOPS	P28
Precast gels	**Page**
u-PAGEL H / p-PAGEL e-PAGEL HR / e-PAGEL	P7-10

AE-6530P

The 9x8cm mini gel offers high versatility and facilitates easy confirmation of electrophoresis patterns. The AE-6530 model comes in two types: the M-type for homemade gels and the P-type for precast gels. Bulk purchases of the precast gel “e-PAGEL” enable cost savings. Please utilize ATTO's best-selling electrophoresis chamber series. Newly released is the precast gel “u-PAGEL H” for electrophoresis of macromolecules and wide-range separation.



AE-6530M

	AE-6530M Rapidas Minislab Electrophoresis	**AE-6530P Rapidas Minislab Electrophoresis**
Number of Gels	**1 / 2**	**1 / 2**
Gel size	90(W)x85 mm(H) T:1mm Plate size 120(W)x102mm(H) Total thick : 7mm	90(W)x88 mm(H) T:1mm Plate size 120(W)x100mm(H) Total thick : 5mm
Matching plate	Self-made gel MAB-10/MB-00（Total thick 7mm）	**e-PAGEL/e-PAGEL HR/p-PAGEL/u-PAGEL H** MAB-12/MB-02（for gel maker WSE-1190）(Total thick 5mm)
Plate holder	AE-6530M/H（for Self-made gel）	AE-6530P/H（for Precast gel PAGEL series）
Dummy plate	DP-7（T:7mm）	DP-5（T:5mm）
Electrophoresis	Standard : 75min High Speed : 25-35min	
Buffer volume	Upper : 80mL Lower : 420mL	
Dimensions /Weight	164(W)x94(D)x154mm(H) / 0.65kg	
Accessories	Plate holder 自作ゲル用 : 2 個 DP-7 Dummy plate : 1 個 リード線 : 1 組	Plate holderPAGEL 用 : 2 個 DP-5 Dummy plate : 1 個 リード線 : 1 組

Code	Product	Quantity
2321905	AE-6530P Rapidas Minislab Electrophoresis (for PAGEL series)	1 set
2321900	AE-6530M Rapidas Minislab Electrophoresis (for Self-made gels)	1 set
2321915	AE-6530MW Rapidas Minislab Electrophoresis (with Gel Maker)	1 set
2393726	AE-6530M/HPlate holder (for Self-made gels)	Set of 2
2393731	AE-6530P/H Plate holder (for PAGEL series)	Set of 2
2393074	DP-5 Dummy plate (for PAGEL series)	1
2398247	DP-7 Dummy plate (for Self-made gels)	1

The only precast gel compatible with the AE-6530 is the ATTO PAGEL series.

WSE-1165 Rapidas Minislab Electrophoresis

Minislab Electrophoresis for precast gels and self made ges

WSE-1165W Rapidas Minislab Electrophoresis

Minislab Electrophoresis with Minislab gel maker

- Tough electrophoresis chamber with thick acrylic plate construction
- Accommodates plates up to 100–120 mm wide, 102 mm high, and 5–7 mm thick
- Plate secured with wedge-shaped plate clamps
- High-speed, high-resolution electrophoresis (as fast as 20 minutes)

Electrophoresis buffer	Page
WSE-7065 EzRun MOPS	P28
Precast gels	**Page**
u-PAGEL H / p-PAGEL e-PAGEL HR / e-PAGEL	P7-10

Compatible with a wide range of gel sizes and plate sizes!!

The new WSE-1165 Rapidas Minislab Electrophoresis, inheriting the legacy of the renowned ATTO AE-6500 Rapidas Minislab Electrophoresis, features a robust thick acrylic plate construction. It accommodates electrophoresis plates with a width of 100 to 120 mm, a height of up to 102 mm, and a total thickness of 5 to 7 mm. Simple plate setup via the wedge-shaped plate clamp and the clear, easily visible top of the electrophoresis chamber ensure effortless sample application.
The dual-sided constant-temperature electrophoresis chamber also supports high-speed electrophoresis.

- Gel-based dual-sided constant temperature
- Automatic polarity switching mechanism

	WSE-1165 Rapidas Minislab Electrophoresis
Number of Gels	**1 / 2**
Gel size	90x85-90mm　T : 1mm
Matching plate	Precast gels PAGEL series（Toral thick : 5mm） Glass plate for WSE-1190（Toral thick : 5mm） Self-made Minislab size Gel（Toral thick : 7mm）
Plate size	100(W)-120(W) x102mm(H)　Total thick : 5-7mm (Glass plates of the specified size can be used.)
Dummy plate	Standard accessories DP-5（T:5mm）(option:DP-7)
Buffer volume	450-650mL
Dimensions / Weight	165(W)x98(D)x134mm(H)　/　0.9kg
Accessories	Plate clamp : 2　DP-5 Dummy plate : 1　Safty read wire : 1 pair

Wedge-shaped plate clamp
Simply insert to secure the plate

Code	Product	Quantity
2322197	WSE-1165 Rapidas Minislab Electrophoresis	1 set
2322198	WSE-1165W Rapidas Minislab Electrophoresis	1 set
2322199	Plate Clamp　(for WSE-1165)	Set of 2
2393074	DP-5 Dummy plate (for PAGEL series)	1
2398247	DP-7 Dummy plate (for Self-made gels)	1
2393722	Safety Lead Wire with Retaining Cap (for 6530)	1

AE-6401 Minislab gel maker kit

For making one gel maker

- **Gel Sheet Creation Kit (2 sets included)**
- **Gel thick 1mm**
- **Total thick : 7mm**

Gel Preparation Buffer	Page
WSE-7310 EzGel Ace WSE-7155 EzGel Stack WSE-7150 EzGel Sep	P27

	AE-6401 Minislab gel maker kit
Gel size	**90(W)x85 mm(H) T : 1mm**
Number of prepared gels	**2 sets of single-gel holders**
Plate	MAB-10 : 2 MB-00 : 2 size 120(W)x102mm(H) **Total thick : 7mm**
Accessories	Comb RM10-12 : 2 Gasket RMS-01 : 2 Magne Clip Mini : 4

	Plate size	Gel size
Standard Gel Maker Plate	120(W)x102mm(H) Total thick : **7mm** **MAB-10/MB-00**	90(W)x80mm(H) T : 1mm

WSE-1190 Multiple Minislab Gel Maker

Minislab Gel Maker for 2-4 gels

- **For 2-4 minislab gels**
- **Gel thickness 1mm**
- **Plate total thick : 5mm**

	WSE-1190 Multiple Minislab Gel Maker
Gel size	**90(W)x90 mm(H) T : 1mm**
Number of prepared gels	**2-4**
Plate	MAB-12x4 MB-02x4 size 120(W)x100mm(H) **Total thick : 5mm**
Comb	RM10-12x4
Accessories	Space plate : 6 Dummy plate : 1 Silicon sheet (22x103mm) : 2 Silicon sheet (22x124mm) : 1

WSE-1190 Multiple Minislab Gel Maker

	Plate size	Gel size
Multiple gel maker plate	120(W)x100mm(H) Total thick : **5mm** **MAB-12/MB-02**	90(W)x83mm(H) T : 1mm

When performing electrophoresis on gels prepared using the Multiple Gel Maker Plate with the WSE-1150/AE-6530, use the AE-6530P/H plate holder.

Code	Product	Quantity
2393010	AE-6401 Minislab Gel Maker Kit T:1mm	1 set
2393031	WSE-1190 Multiple Minislab Gel Maker	1 set
2393034	Silicon sheet (for WSE-1190)	Set of 3
2393035	MAB-12 Palte (for WSE-1190)	Set of 2
2393036	MB-02 Plate (for WSE-1190)	Set of 2
2393037	Dummy plate (for WSE-1190)	1
2393038	Space Plate (for WSE-1190)	Set of 3
2398239	Rapidas Magne Clip Mini	Set of 4

Glass plate/Gasket/Comb for Minislab Gel

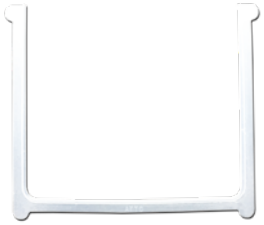
Glass Plate for Minislab Gel

Regarding the thickness of the glass plate

Glass plates for mini-slab gels are available in thicknesses of “2mm” and “3mm”. Use them so that the total thickness when combined is either ‘5mm’ or “7mm”. Please note that the compatible Gel Maker, electrophoresis unit, holder, etc., will differ depending on the total thickness.

Mini Slab Gel Plate Combination Chart (T = Plate Thickness)

Concave Plate	**MAB-10** (T=3mm) Gel = T:1mm	**MAB-12** (T=2mm) Gel = T:1mm	**MAB-075** (T=3mm) Gel = T:0.75mm	**MAB-22** (T=2mm) Gel = T:2mm
Square Plate	**MB-00** (T=3mm)	**MB-02** (T=2mm)	**MB-00** (T=3mm)	**MB-00** (T=3mm)
Total thick	**7mm**	**5mm**	**6.8mm**	**7mm**
Gel Maker	AE-6401	**WSE-1190**	AE-6401	AE-6401



RMS-01 Seal gasket

Code	Type Product	Quantity
2398230	MAB-10 Plate	Set of 2
2393035	MAB-12 Plate（WSE-1190）	Set of 2
2398228	MAB-075 Plate	Set of 2
2398236	MAB-22 Plate　2mm thick	Set of 2
2393036	MB-02 Plate（WSE-1190）	Set of 2
2398232	MB-00　Plate	Set of 2
2398214	RM-10 Minislab Plate set (1mm)	1 set
2393014	RM-075 Minislab Plate set (0.75mm)	1 set
2393740	RM-22 Minislab Plate set (2mm)	1 set
2398237	RMS-01 Seal gasket (1mm)	Set of 3

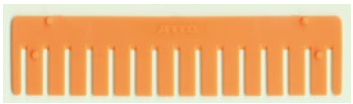
※ When using the MAB-10, the RMS-01 seal gasket is required.
※ The MAB-12 is a dedicated plate for the WSE-1190 Multi-Slab Gel Maker.
Seal gaskets cannot be used.

Minislab gel comb

RM10-12

RM10-18

RM10-14



RM10-21

Type	Well	Thick	Well width	Between wells	Well depth	Comb width	Apply volume	Material
RM10-12	12	1mm	4.4mm	2mm	10mm	87mm	20-30μL	Polypropylene
RM10-14	14	1mm	4.3mm	1.5mm	10mm	88mm	20-28μL	Polypropylene
RM10-18	18	1mm	2.9mm	1.6mm	10mm	87mm	15-20μL	Polypropylene
RM10-21	21	1mm	1.8mm	1.7mm	10mm	86mm	8-12μL	Polypropylene
RM075-12	12	0.75mm	4.5mm	2mm	10mm	120mm	15-20μL	Teflon
2D-Flat	–	2.5mm	78（W）x25mm（H）					Acrylic

The 2D-Flat is a flat-type comb, so it does not form wells in the gel.

Code	Product	Quantity
2398269	RM10-12 Smiling Less Mini Comb (12 well)	Set of 2
2398224	RM10-14 Smiling Less Mini Comb (14 well)	Set of 2
2398252	RM10-18 Smiling Less Mini Comb (18 well)	Set of 2
2398255	RM10-21 Smiling Less Mini Comb (21 Well)	Set of 2
2398271	RM075-12 Smiling Less Mini Comb	Set of 2
2394160	Mini Flat Comb for 2D/EP	Set of 2

WSE-1170 Multilane Gel Electrophoresis

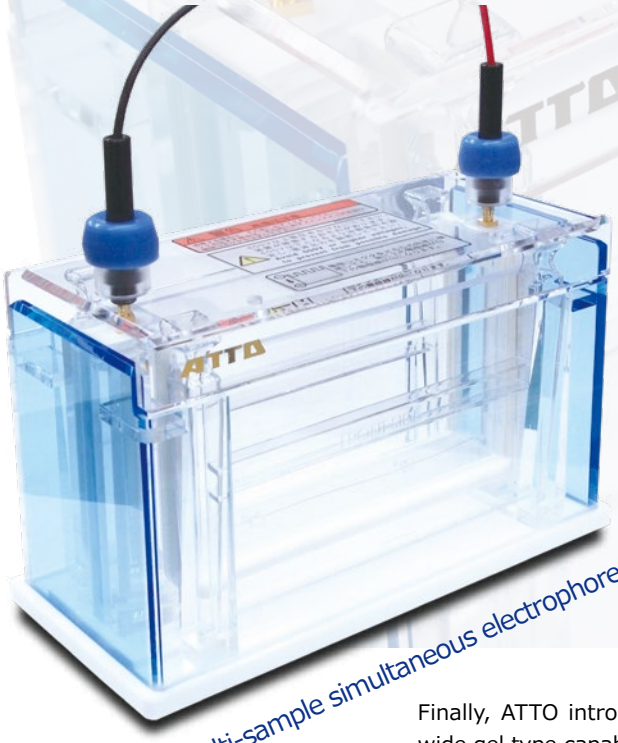
Wideslab Electrophoresis for precast gel and self made gel

WSE-1170W Multilane Gel Electrophoresis

Wideslab Electrophoresis with Gel Maker

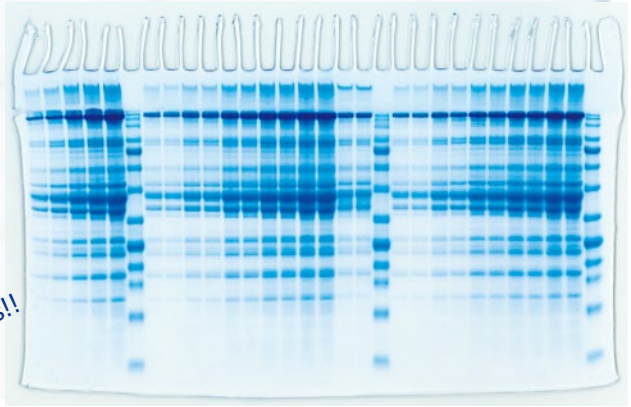
- 30 lanes/gel Multi-sample electrophoresis (2 plates/60 samples run simultaneously)
- Gel size: 140mm (W) x 80mm (H) Plate size: 160mm (W) x 100mm (H)
- Plate secured simply by inserting wedge-shaped plate clamps
- Supports high-speed, high-resolution electrophoresis

Electrophoresis buffer	Page
WSE-7065 EzRun MOPS	P28
Precast gel	**Page**
m-PAGEL	P12



For multi-sample simultaneous electrophoresis!!

For example, in microbiome research!!
The power to simultaneously analyze 60 samples!!



Finally, ATTO introduces the WSE-1170 Multi-Lane Gel Electrophoresis Unit, a wide gel type capable of running 30 lanes per gel at once.
This allows 30 samples to be run on a single gel, enabling the comparison of many samples at once. By applying “High-Speed High-Resolution Electrophoresis” technology, clear patterns can be obtained in a short time. For Western blotting, the increased number of samples that can be compared simultaneously improves experimental efficiency.

	WSE-1170 Multilane Gel Electrophoresis
Number of Gels	**1 / 2**
Gel size	140(W)x88 mm(H) T : 1mm Sample well : 30 well (ML10-30)
Plate size	160(W) x100 mm(H) Total thick : 5mm
Buffer volume	900mL
Dimensions / Weight	204(W)x98.6(D)x130mm(H) / 0.5kg
Accessories	Plate clamp : 2 Dummy plate : 1

Code	Product	Quantity
2322210	WSE-1170 Multilane Gel Electrophoresis	1 set
2322211	WSE-1170W Multilane Gel Electrophoresis with Gel Maker	1 set
2322214	Plate clamp (WSE-1170)	Set of 2
2322215	Dummy plate (WSE-1170)	1
2393722	Safety Lead Wire with Retaining Cap (for 6530)	1

WSE-1195 MultiLane Gel Maker

Gel Maker for Widwslab Gel

- **WSE-1170 Gel Preparation for Multi-Lane Gel Electrophoresis Chamber**
- **Standard configuration prepares two gels at a time**
- **Adding plates and combs allows preparation of up to four gels simultaneously**

WSE-1195 Multilane Gel Maker

Gel Preparation Buffer	Page
WSE-7310 EzGel Ace WSE-7155 EzGel Stack WSE-7150 EzGel Sep	P27

	WSE-1195 Multilane Gel Maker
Gel size	**140(W)x88 mm(H)　厚 1mm**
Number of prepared gels	**2-4**
Plate	MLAB-12 x 2　MLB-02 x 2 size 160(W)x100mm(H)　Total thick：5mm
Accessories	Multilane comb　ML10-30 x 2 スペースプレート 98x160x1mm x 6 Dummy plate　98x160x10mm x 1 Silicon sheet 22x103mm x 1 Silicon sheet 22x164mm x 1

ML10-30（Real size）

Type	Well	Thick	Well width	Between wells	Well depth	Comb width	Apply volume	Material
ML10-30	30	1mm	3mm	1.5mm	10mm	138mm	20μL	Polypropylene

Code	Product	Quantity
2393032	WSE-1195 Multilane Gel Maker	1 set
2393039	Dummy plate (WSE-1195)	1
2393040	Space plate (WSE-1195)	Set of 6
2393041	Silicon sheet (WSE-1195)	Set of 3
2398300	ML-10 Plate set (WSE-1170/1195)	1 set
2398301	MLAB-12 Plate (WSE-1170/1195)	Set of 2
2398302	MLB-02 Plate (WSE-1170/1195)	Set of 2
2398303	ML10-30 Multilane comb (WSE-1195)	Set of 2

AE-6220 Rapidas Dual-Slab Gel Electrophoresis

for slab size (138x130mm) gel

- **Medium size slab gel electrophoresis**
- **For 1-2 Slab Gels**

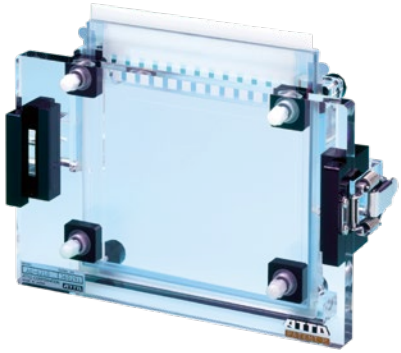
The Rapidas Dual-Slab Gel Electrophoresis is a medium-sized slab gel electrophoresis unit. Its large gel size accommodates higher loading volumes and is suitable for samples with numerous bands.

	AE-6220 Rapidas Dual-Slab Gel Electrophoresis
Number of Gels	**1 / 2**
Gel size	138x130mm T : 1mm
Plate	160x160mm Total thick : 11mm
Buffer volume	uper : 480mL Lower : 450mL
Dimension	211(W)x196(D)x205mm(H)

AE-6220 Rapidas Slab Gel Electrophoresis

AE-6210 Rapidas Slab Gel Maker

Gel Maker



To prepare two gels simultaneously, two sets of the “AE-6210 Rapidas Slab Gel Maker” are required.

名称	**AE-6210 Rapidas Slab Gel Maker**
Gel size	**138(W)x130mm(H) T : 1mm**
Number of prepared gels	**1**
Plate	RAB-10x1 RB-00x1 size 160(W)x160mm(H) Total thick:11mm
Accessories	Comb RS10-12x1 Gasket RS-01x1

Type	Well	Thick	Well width	Between wells	Well depth	Comb width	Apply volume	Material
RS10-08	8	1mm	11mm	4mm	15mm	156mm	70-90µL	Teflon
RS10-12	12	1mm	6mm	4mm	15mm	156mm	40-50µL	Teflon
RS10-20	20	1mm	3mm	3mm	15mm	156mm	20-25µL	Teflon

Gel Preparation Buffer	Page
WSE-7310 EzGel Ace WSE-7155 EzGel Stack WSE-7150 EzGel Sep	P35

Code	Product	Quantity
2392990	AE-6220 Rapidas Dual-slab Gel Electrophoresis	1 set
2392980	AE-6210 Rapidas Slab Gel Maker	1 set
2392020	RP-10 Plate set	1 set
2392029	RAB-10 Plate	Set of 2
2392031	RB-00 Plate	Set of 2
2392032	RS-01 Seal Gasket	Set of 3
2392060	RS10-08 Smiling Less Comb (T:1mm / 8 well)	1
2392061	RS10-12 Smiling Less Comb (T:1mm / 12 well)	1
2392062	RS10-20 Smiling Less Comb (T:1mm / 20 well)	1

WSE-1710 Submerge Mini

Submarine-type agarose gel electrophoresis apparatus

- **Compact, safety-designed electrophoresis unit with power supply**
- **Output switchable between 50V/100V/150V · 0–99 minute timer**
- **Compatible with Mupid-type gel trays**

Electrophoresis buffer	Page
WSE-7050 EzRun TAE WSE-7051 EzRun TBE WSE-7066 EzRun MOPS non-SDS	P30-31
Fluorescent Detection Reagent	**Page**
EzFluoroStain DNA EzPreStain DNA&RNA	P39

Safty mechanism

Power supply will stop if errors are detected, such as insufficient buffer volume preventing power-on detection (E5) or failure to detect the safety cover installed (E3). The safety cover's slit allows steam to escape and enables viewing of the gel during electrophoresis. This slit is designed to prevent fingers from entering.

Timer included

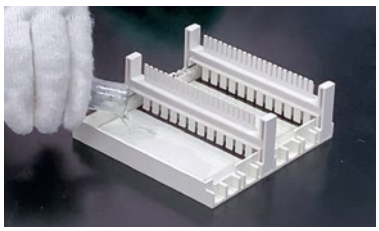
- "1 to 99 min" → Output stops when time elapses
- Continuous output is also possible with a "0 min" setting

3 types of EP Speed

- "50V" → Standard time: "45–60 minutes"
  For polyelectrolyte electrophoresis, etc.
- "100V" → Standard time: "30 minutes"
  For PCR product verification, etc.
- "150V" → Standard time: "20 minutes"
  For high-speed electrophoresis

Heart-registant gel tray

Even if you immediately pour the heated, dissolved agarose gel solution, it will not deform.



UV-transmissive gel tray

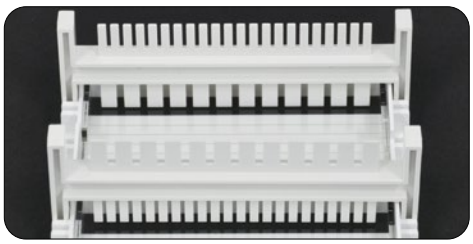
The Submar Mini gel tray is UV-transparent. When agarose gel or samples mixed with fluorescent dyes are used, detection is possible without removing the tray.

	WSE-1710 Submerge Mini
Buffer volume	200mL-230mL
Timer	0 min : timer free　1-99 min : Timer control End Alarm/Output Stop
Condition	Output DC 50V/100V/150V Selectable（Max40W）
AC adaptor	AC100-120V　50/60Hz　70W
Safty	①Failure to detect power supply due to insufficient buffer volume（E5） ②Safety Cover Detection（E1/E3）　③Overcurrent（E7） In the above case, error display and output stop.
Gel tray size	S : 54(W)x60mm(L)　L : 110(W)x60mm(L)
Dimensions / Weight	190mm(W)x130mm(D)x60mm(H)　0.45kg (without AC adaptor)
Contents	Electrophoresis chamber,Power supply,Safty cover,Gel preparation stand S,Gel preparation stand L,Comb Lx2,Comb Sx2,Gel Tray Sx4,Gel tray Lx2,Manual

Comb

Gel Maker S set / L set includes two combs

- Comb L・22 well Compatible with multipipets
- Comb L : 22 well / 12 well
- Comb S : 9 well / 5 well



Code	Product	Quantity
2322100	WSE-1710 Submerge Mini	1 set
2322107	Gel Maker S set (WSE-1710)	1 set
2322108	Gel Maker L set (WSE-1710)	1 set
2322109	Gel Maker S&L set (WSE-1710)	1 set
2322113	Comb L (WSE-1710)	Set of 2
2322118	Comb S (WSE-1710)	Set of 2
2322112	Gel tray L (WSE-1710)	Set of 2
2322117	Gel tray S (WSE-1710)	Set of 4
2322116	Gel preparation stand S（WSE-1710）	1
2322111	Gel preparation stand L (WSE-1710)	1

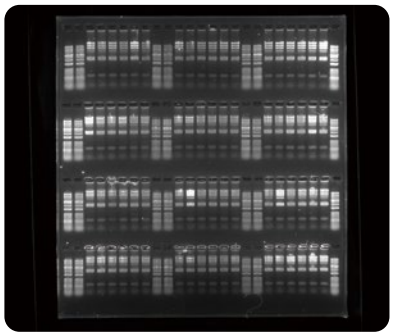
WSE-1720 Submerge Multi

Submarine-type agarose gel electrophoresis apparatus

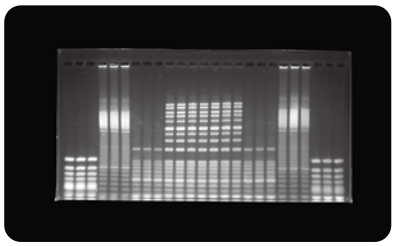
- **Maximum 100 samples (Gel Tray L / 25-sample coulter x4)**
- **DC 18V, 25V, 35V, 50V, 70V, 100V, 135V: 7-step settings**
  → **Supports RNA electrophoresis, DNA polymorphism analysis, high-speed PCR product electrophoresis, etc.**
- **Timer function: 1-minute increments, up to 99 hours 59 minutes**
- **Safety mechanism: Output disabled unless top cover is closed**
- **Includes heat-resistant coulter, gel tray, and gel preparation stand**

Electrophoresis buffer	Page
WSE-7050 EzRun TAE WSE-7051 EzRun TBE WSE-7066 EzRun MOPS non-SDS	P30-31
Fluorescent Detection Reagent	**Page**
EzFluoroStain DNA EzPreStain DNA&RNA	P39

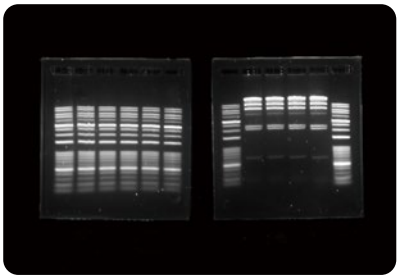
Example



Gel tray L： 120x120 mm
100 samples（100 bp ladder, λ/Hind Ⅲ）
condition：c.v 100V,23 min



Gel tray M：120x60mm
25 samples（Φx174/Hinc Ⅱ・100 base Ladder）
condition：c.v 50V,60min



Gel tray S： 60 x 60 mm
6 samples（100 bp ladder, λ/Hind Ⅲ）
condition：c.v 135V,20min

	WSE-1720 Submerge Multi
Buffer volume	330mL-360mL
Timer LCD display	0-99 hours 59 min / End alarm　(Continuous output: “OFF” setting) Time：Count down　LCD:End,Error「Err1」「Err2」
Condition	Output DC 18/25/35/50/70/100/135V 7 steps
Power supply	AC100-110V　50/60Hz　60W
Safty mechanism	Overcurrent（Err1） No top cover/Output stopped/Alarm（Err2） Fuse：250V-1.0A fast-blow miniature fuse
Gel tray size	S：60x60mm　M：120x60mm　L：120x120mm
Dimensions / Weight	260(W)x170(D)x68mm(H)　0.77kg(without AC cable)
Conternts	Electrophoresi chamber,Power supply,Safty cover,Gel preparation stand,Double-edged comb x7,Gel tray x4,Manual

Code	Product	Quantity
2322130	WSE-1720 Submerge Multi	1 set
2322136	Gel tray S (1720)	Set of 2
2322137	Gel tray M (1720)	1
2322138	Gel tray L (1720)	1
2322139	Comb (for 1720:25/11 well)	Set of 4
2322140	Comb (for 1720:18/8 well 13/6 well,3/2 well)	1 set
2322141	Gel preparation stand (1720)	1
2322142	Safty cover (1720)	1

AE-6100 Submerge Agarose

・Gel size : 80x100mm Sample comb : 10 well

AE-6111 6100 Submerge Agarose

・Gel size : 120x160mm Sample comb : 26/13 well

Electrophoresis buffer	Page
WSE-7050 EzRun TAE WSE-7051 EzRun TBE WSE-7066 EzRun MOPS non-SDS	P30-31
Fluorescent Detection Reagent	**Page**
EzFluoroStain DNA EzPreStain DNA&RNA	P39

The Submerge Agarose series are submarine-type agarose gel electrophoresis chambers. Compared to the Submerge Mini with its integrated power supply, it accommodates larger gel sizes and is suitable not only for confirmation electrophoresis of PCR products but also for electrophoresis in DNA polymorphism analysis. For electrophoresis buffers, use “WSE-7050 EzRun TAE” or “WSE-7051 EzRun TBE”. For DNA detection, use “WSE-7130 EzFluoroStain DNA” or “WSE-7135 EzPreStain DNA&RNA”.

AE-6111 Submerge Agarose

AE-6100 Submerge Agarose

	AE-6111 Submerge Agarose	AE-6100 Submerge Agarose
Number of Gels	**1**	**1**
Gel size	120(W)x160mm(L) T:8mm(max)	80(W)x100mm(L) T:10mm(max)
Comb	Dual-Edge Comb (26/13 well) T:1mm Well width 26 well : 3mm 13 well : 6mm	Acrylic Sample Comb (10 well) T:1mm Well width 5mm
Buffer volume	700-1200mL Buffer circulation possible	300-500mL
Dimension	286(W)x150(D)x83mm(H)	190(W)x100(D)x80mm(H)

Code	Product	Quantity
2322153	AE-6100 Submerge Agarose	1 set
2398193	Bind clip	Set of 5
2398194	Gelrack (for AE-6100,UV transmittance)	1
2398201	Sample comb fixed base (AE-6100)	1
2398205	Tape (for Submerge Agarose) 6.3m	Set of 3
2398206	Acrylic sample comb (6 well) T:1mm	1
2398207	Acrylic sample comb (10 well) T:1mm	1
2398208	Acrylic sample comb (16 well) T:1mm	1
2398209	Sample comb for sampling (Width:50mm・T:1mm)	1
2398213	Acrylic sample comb (14 well) T:1mm	1
2322178	AE-6111 Submerge Agarose	1 set
2393382	Gel rack (120mmWx160mmL) for 6111	1
2393383	Sample comb double edged type (26/13 well) T:1mm	1
2393384	Sample comb mount (Width:120mm with mounting screws)	1
2393385	Dam for submerge (Width:120mm)	Set of 2

WSE-1510 DiscRun Ace

Isoelectric focusing disc electrophoresis with power supply

AE-6540B Mini Compact Disc Electrophotresis

Isoelectric focusing disc electrophoresis for mini/compact size gel

IEF precast gel	Page
type:A-M agarGEL	P13

- **Now with “High-Speed 2D Electrophoresis” that can be completed in a single day!**
- **1D electrophoresis: 3.5 hours → Fixation and SDS treatment: 2–3 hours → 2D electrophoresis: 0.5 hours → Total: 6–7 hours**
- **Compatible with ATTO mini gels (90 x 80 mm)**
- **“Agar Gel,” a pre-made gel for the first dimension that eliminates the need for swelling or pre-running**
- **Capable of electrophoresis for protein amounts that can be visualized with CBB staining**

WSE-1510 DiscRun Ace

AC adaptor (24V/1.5A)

Disklan Ace is a power-supply-equipped electrophoresis system designed for agarose gel electrophoresis. The first-dimension electrophoresis is completed in 110 to 240 minutes.

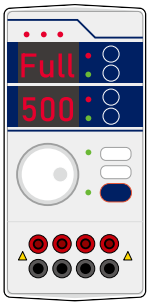
Gel preparation kit

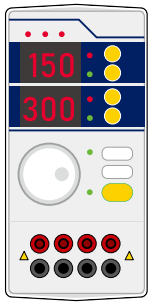
AE-6540B Mini Compact Disc Electrophoresis

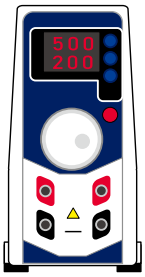
	WSE-1510 DiscRun Ace	AE-6540B Mini Compact Disc Electrophoresis
Column size	for mini slab gel : 7mmx100mm	
Gel size	for mini slab gel : Φ 2.5mmx75mm	
Number of gels	1-8	
Condition	Step mode : 50 → 100 → 300 → 600 → 900V Constant volt mode : 300/600/900V Timer : 1-999min Continuous output: “0” setting	Configure using a separate power supply
Power supply	AC adaptor (output:24VDC/1.5A) AC100-240V 50/60Hz 13W	–
Dimensions / Weight	164mm(W)x94mm(D)x193mm(H) ・0.81kg	164mm(W)x94mm(D)x154mm(H) ・0.61kg
Accessories	EP Chamber :1 Power supply :1 AC adaptor :1 Extension cord :1 Sealing gasket :8 Silicone stopper:7 Gel :1 Agar gel tray :1 Manual	EP Chamber :1 Extension cord :1 Sealing gasket :8 Silicone stopper:7 Gel :1 Agar gel tray :1 Manual

Code	Product	Quantity
2321780	WSE-1510 DiscRun Ace	1 set
2321182	AE-6540B Mini Compact Disc Electrophoresis	1 set
2394180	Mini Gel Preparation Kit for One-Dimensional Applications	1 set
2394181	Compact Gel Preparation Kit for One-Dimensional Applications	1 set

ATTO Electrophoresis Power Supply







page	Category	Product
71	Digiral Power Supply	WSE-3100 PowerStarion Ghibli Ⅰ
73	High-Voltage Power Supply	WSE-3200 PowerStation Ⅲ
73	High-Current Power Supply	WSE-3500 PowerStation HC
74	Compact General-Purpose Power Supply	AE-8135 MyPower Ⅱ 300 AE-8155 MyPower Ⅱ 500

Power Supply Selection Guide

For example, a power supply designed for electrophoresis is required to operate a slab electrophoresis system. As the gel size increases, a higher voltage capacity is required. Additionally, blotting systems require a high current capacity.
As a general guideline for selecting equipment, prioritize voltage (V) for polyacrylamide gel electrophoresis, and prioritize current (A) for agarose electrophoresis and blotting. Please refer to the equipment specifications for details. The table below shows the suitability of power supplies for ATTO electrophoresis and blotting systems.
(○: Suitable; △: May not be suitable depending on conditions; ×: Not suitable)

	WSE-3100	**WSE-3200**	**WSE-3500**	**AE-8135**	**AE-8155**
Voltage (V)	0-500	10-1000	5-150	1-300	1-500
Current (mA)	0-3000	0-500	0-3000	1-400	1-200
Electricith (W)	0-200	0-200	0-200	(Max 50W)	(Max 25W)
Mini slab gel/Wide slab gel	○	○	△	○	○
Slab gel	○	○	x	○	○
IEF Disc gel	○	○	x	△	△
Isopotential flat gel	△	△	x	x	x
Submarine-type agarosegel	○	○	△	○	△
Semi dry blotting	○	△	○	○	x
Hi-speed semi dry blotting	○	△	○	△	x
Wet-type blotting	○	x	○	△	x

WSE-3100 PowerStation Ghibli I

Touchscreen Operation: New Digital Power Supply—The World's Most Advanced!

"Ghibli" is a cutting-edge new brand set to revolutionize electrophoresis power supplies

- **Fully touch-panel operated (interactive)**
- **Equipped with a preset menu (Easy Mode)**
  → **Simply select the experiment method**
- **Simple manual settings**
  → **Just select one of cc/cv/cw, set the desired output, and press start.**
- **Frequently used conditions can be saved**
  → **Various settings can be saved to a method file.**
- **Output settings (with output logging function)**
  → **3–500 V / 10 mA–3.0 A / 1–200 W**

Ideal for high-speed electrophoresis and high-speed blotting!

We' ve evolved from the cumbersome operation of conventional electrophoresis power supplies to an incredibly simple interface featuring an interactive touch panel. This single unit supports a wide range of applications, including electrophoresis, blotting, and isoelectric focusing.

When powered on, a "cat" runs!

Example of Operation:" Manual" Mode

Operation when running at a constant voltage of 500 V for 30 minutes starting from power-on

① Power ON

The ATTO logo will appear. Please wait until the menu appears (about 7 seconds).

② Condition

Press the "CV" button and enter "500" .Enter "30" in the Timer field.
→ Setup complete!

③ Start

Press the "Run" button to start the animation.
→ The cat runs!

④ Finished

The electrophoresis will finish in 30 minutes.
→ The "cat" will stop as well.

Code	Product	Quantity
2311130	WSE-3100 PowerStation Ghibli I	1

Digital Power Supply

Easy mode

When you select an experiment type, the power supply automatically configures the settings.

① Select a use
SDS-PAGE

② Select Gel size
Mini-gel

③ Select condition
Fast → Run（Start）

Method File mode

① Select one from the list
↓
② Run（Start）

You can save the conditions you set in Manual or Easy mode. Next time, you can start the run immediately by selecting from your saved conditions.

Error message

If an output error occurs for any reason, the output will stop immediately and an error message will appear. The error can be cleared by turning the power off.

Touch pnale display

Displays mode selection, condition selection, various condition inputs, and other information. Since it is pressure-sensitive, it can be operated even while wearing gloves.

Mode selection

Select and switch between various modes.

Output terminal

Connect to electrophoresis systems, blotting systems, and similar equipment.

MAIN Switch

Turns the power on and off.

	WSE-3100 PowerStation Ghibli I
Voltage (Settings)	0-3000mA（10-3000mA）
Current (Settings)	0-500V（3-500V）
ElectriCity (Settings)	0-200W（1-200W）
Timer	1-999min（countdown） When the timer is off, it counts up
Output terminal	4-channel parallel output
Condition for Hi-speed blotting	max 3000mA（Max 200W）
Hi-speed electrophoresis number of gels	1-4
Power	AC100-240V 50/60Hz 300VA
Dimensions /Weight	119(W)x417(D)x224mm(H) ・ 6kg

WSE-3200 PowerStation Ⅲ

High-Voltage Power Supply for High-Speed Electrophoresis

- High-speed electrophoresis: Output up to 1000 V
- Precision power supply
- Maximum output: 200 W

WSE-3500 PowerStation HC

High-Current Power Supply for High-Speed Blotting

- High-speed blotting: Output up to 3.0 A
- Precision power supply
- Maximum output of 200 W

For Hi-speed Electrophoresis

WSE-3200 PoweStation Ⅲ

For Hi-speed Blotting

WSE-3500 PowerStationHC

The “Power Station III” is a precision power supply with an output of 1000 V/500 mA. It features programmable functions and comes with a variety of preset electrophoresis conditions. The “Power Station HC” is a power supply with a 3.0 A output, ideal for high-speed blotting. It also supports high-speed blotting using the Horizon Blot 4M system with 20 cm × 20 cm gel plates.

名称	**WSE-3200 powerStation Ⅲ**	**WSE-3500 powerStationHC**
Current (Settings)	0-500mA（1-500mA）	0-3.00A（0.01-3.00A）
Voltage (Settings)	10-1,000V（10-1,000V）	5-150V（10-150V）
Electricity (Settings)	0-200W（1-200W）	0-200W（1-200W）
Timer	0min : Continuous mode　1-999min	0min : Continuous mode　1-999min
Output terminal	4-channel parallel output	4-channel parallel output
Condition of blotting	Max 500mA（Max 200W）	Max 3.0A（Max 200W）
Hi-speed Electrophoresis	1-4	-
Hi-speed blotting	mini gel x 1	mini gel x4/ max 20x20cm
Power	AC100-240V　50/60Hz　300W	AC100-240V　50/60Hz　300W
Dimensions /Weight	96(W)x325(D)x195mm(H)・2.4kg	96(W)x325(D)x195mm(H)・2.4kg

Code	Product	Quantity
2311145	WSE-3200 powerStation Ⅲ	1
2311124	WSE-3500 powerStationHC	1

AE-8135 MyPower Ⅱ 300

Space-saving Personal Power Supply with 400mA/300V Output

- Semi dry blotting
- Agarose gel Electrophoresis
- SDS-PAGE

AE-8155 MyPower Ⅱ 500

Space-saving, 200mA/500V output, personal power supply

- SDS-PAGE
- Semi dry blotting（Up to one mini gel）

Semi dry blotting

AE-8135 MyPower Ⅱ 300

SDS-PAGE

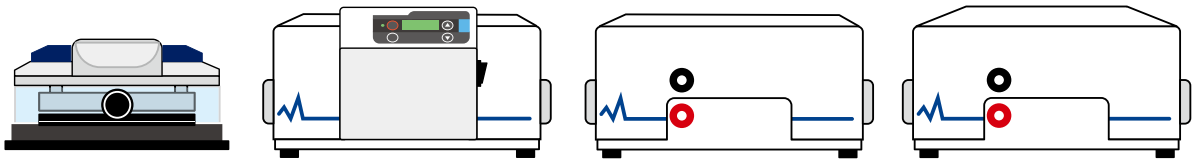
AE-8155 MyPower Ⅱ 500

The MyPower II series features a compact, lightweight design that saves space. The lineup includes two models: the MyPower II 500, capable of high-speed electrophoresis in addition to standard SDS-PAGE, and the MyPower II 300, which also supports semi-dry blotting.

名称	**AE-8135 MyPower Ⅱ 300**	**AE-8155 MyPower Ⅱ 500**
Current (Settings)	1-400mA（1-400）	1-200mA（1-200）
Voltage (Settings)	1-300V（1-300）	1-500V（1-500）
Timer	1-999min	1-999min
Output terminal	2-channel parallel output	2-channel parallel output
Condition of blotting	Max 400mA（Max 50W）	Max 200mA（Max 25W）
Hi-speed Electrophoresis	1/2：◎	1：◎　2：△
Hi-speed blotting	Compact gel x 1	-
Power	AC100-115V　50/60Hz　70VA	AC100-115V　50/60Hz　40VA
Dimensions /Weight	74(W)x170(D)x170mm(H)・0.74kg	74(W)x170(D)x170mm(H)・0.74kg

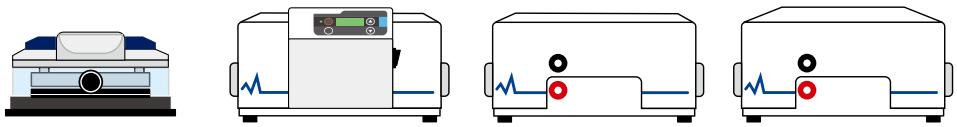
Code	Product	Quantity
2311175	AE-8135 MyPower Ⅱ 300	1
2311185	AE-8155 MyPower Ⅱ 500	1

ATTO Blotting Appratus series



Page	Category	Product
76	Blotting Apparatus with power supply (for one mini gel)	WSE-4115 PoweredBlot Ace WSE-4115C PoweredBlot Ace (with Menbranes and Absorbent Paper)※1 WSE-4115M PoweredBlot Ace (with Menbranes and Absorbent Paper)※1
77	Blotting Apparatus with power supply (for two mini gel)	WSE-4125 PoweredBlot 2M WSE-4125M PoweredBlot 2M (with Menbranes and Absorbent Paper)※2
78	Blotting Apparatus (for two mini gel)	WSE-4025 HorizBlot 2M WSE-4025M HorizBlot 2M (with Menbranes and Absorbent Paper)※2
79	Blotting Apparatus (for four mini gel)	WSE-4045 HorizBlot 4M WSE-4045M HorizBlot 4M (with Menbranes and Absorbent Paper)※2

※1 : Includes a compact gel size (65x65mm).
※2 : Includes a mini gel size (90x85mm).



Type	WSE-4115	WSE-4125	WSE-4025	WSE-4045
Power supply	Included	Included	Sold separately	Sold separately
Electrode size	95x98mm	205x100mm	205x100mm	205x200mm
Hi-speed blotting	Support	Support	Support※3	Support※3
Blotting roller	Included	Included	Included	Included

※3 : Depends on the power supply.
For high-speed blotting, please use a high-speed blotting buffer (such as AE-1465 or WSE-7210) or the QBlot Kit.

WSE-4115 PoweredBlot Ace

Space-saving Blotting Apparatus with power supply

- **Use EzFastBlot for high-speed semi-dry blotting!**
  → RAPID mode: 5–10 minutes (minimum) to 30 minutes (maximum)
- **Use EzFastBlot HMW for blotting high-molecular-weight proteins!**
  → RAPID mode: 30–60 minutes

PoweredBlot Ace is a self-powered semi-dry blotting apparatus. It accommodates a single mini-gel and supports both standard and high-speed blotting (please use the high-speed blotting buffer).

	WSE-4115 PoweredBlot Ace
Uses	Semi dry blotting
Blotting size	max:95(W)x98mm(H) **for mini gel x 1**
Electrode	Platinum-titanium electrode (Anode) Stainless steel electrode(cathode)
Electrode distance	min:3mm - max:10mm(Pressed by a spring)
Condition	STD : 12V c.v RAPID : 24V c.v Timer : 1-250min
Blotting reagents	WSE-7210 EzFastBlot HMW/AE-1465 EzFastBlot/AE-1460 EzBlot
PVDF membrane	WSE-4050/WSE-4051/WSE-4053
Absorbent paper	**T:0.9mm CB-06A/CB-09A** (our recommend)
Dimensions /Weight	Apparatus 170mm(W)x120mm(D)x107mm(H) ・0.77kg AC adaptor 36mm(W)x95mm(D)x31mm(H) ・0.14kg
Power	AC adaptor (24VDC/1.5A) AC100-240V 50/60Hz 26W

Blotting reagents	Page
QBlot kit series	P42
WSE-7210 EzFastblot HMW AE-1465 EzFastBlot AE-1460 EzBlot	P43-44
PVDF membrane	P45
Absorbent paper	P46

A design that integrates the power supply and blotting apparatus

AC adaptor (24V/1.5A)

Condition : select mode RAPID (c.v.24V) ↔ STD (c.v.12V) : Timer1-250min

RAPID : c.v.24V
Hi-speed mode

STD : c.v.12V
standard mode

Blotting roller
It effectively removes air bubbles.

Code	Product	Quantity
2322490	WSE-4115 PoweredBlot Ace	1
2322491	WSE-4115C PoweredBlot Ace with Menbranes and Absorbent Paper	1 set
2322492	WSE-4115M PoweredBlot Ace with Menbranes and Absorbent Paper	1 set
2322479	Blotting roller	1

WSE-4125 PoweredBlot 2M

for two mini gel　Blotting Apparatus with power supply

- **Use EzFastBlot for high-speed semi-dry blotting!**
  → **RAPID mode: 5–10 minutes (minimum) to 30 minutes (maximum)**
- **Use EzFastBlot HMW for blotting high-molecular-weight proteins!**
  → **RAPID mode: 30–60 minutes**

The PoweredBlot 2M is a semi-dry blotting apparatus with a built-in power supply. It accommodates two mini gels and supports both standard and high-speed blotting (please use the high-speed blotting buffer).

	WSE-4125 PoweredBlot 2M
Uses	Semi dry blotting
Blotting size	max 205(W)x100mm(H)　**Mini gel x 2**
Electrode	Platinum-titanium electrode (Anode) Stainless steel electrode(cathode)
Electrode distance	min:3mm - max:15mm (Pressed by a spring)
Condition	STD : 12V c.v　RAPID : 24V c.v　Timer : 1-250min
Blotting reagents	WSE-7210 EzFastBlot HMW/AE-1465 EzFastBlot/AE-1460 EzBlot
PVDF membrane	WSE-4050/4051/4053/4054
Absorbent paper	**T:0.9mm　CB-06A/CB-09A** (our recommend)
Dimensions /Weight	Apparatus 246mm(W)x186mm(D)x114mm(H)・2.1kg AC adaptor36mm(W)x95mm(D)x31mm(H)・0.14kg
Power	AC adaptor (24VDC/1.5A) AC100-240V 50/60Hz　26W

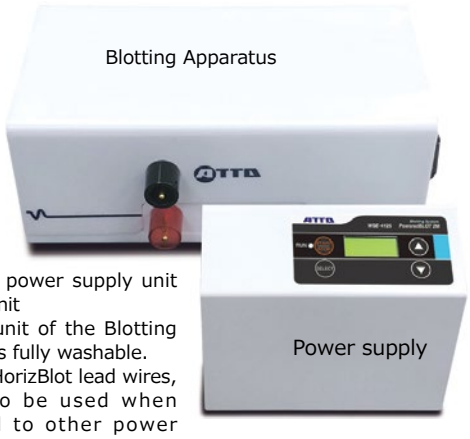
Blotting reagents	Page
QBlot kit series	P42
WSE-7210 EzFastblot HMW AE-1465 EzFastBlot AE-1460 EzBlot	P43-44
PVDF membrane	P45
Absorbent paper	P46

Transfer 5min

Electrode 205 x 100mm

A design that integrates the power supply and blotting apparatus

Blotting Apparatus

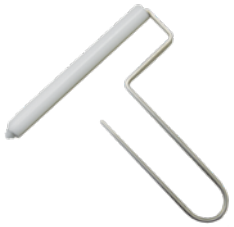


Detachable power supply unit and main unit
The main unit of the Blotting Apparatus is fully washable.
By adding HorizBlot lead wires, it can also be used when connected to other power sources.

AC adaptor（24V/1.5A）

Condition:select mode　24V（Hi-speed）↔12V（Standard）: Timer1-250min

24V : Hi-speed
12V : Standard



Blotting roller
It effectively removes air bubbles.

Code	Product	Quantity
2322496	WSE-4125 PoweredBlot 2M	1
2322497	WSE-4125M PoweredBlot 2M with Menbranes and Absorbent Paper	1 set
2322479	Blotting roller	1

WSE-4025 HorizBlot 2M

for two mini gel Blotting Apparatus

- **Use EzFastBlot for high-speed semi-dry blotting!**
- **Use EzFastBlot HMW for blotting high-molecular-weight proteins!**

The HorizBlot 2M is a semi-dry blotting apparatus. It accommodates two mini-gels and supports both standard and high-speed blotting (please use the high-speed blotting buffer).

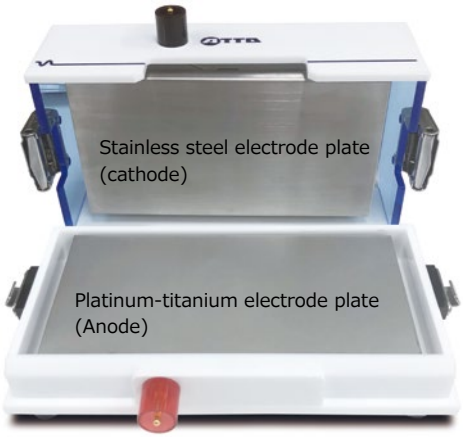
	WSE-4025 HorizBlot 2M
Uses	Semi dry blotting
Blotting size	max 205(W)x100mm(H) **Mini gel x 2**
Electrode	Platinum-titanium electrode (Anode) Stainless steel electrode(cathode)
Electrode distance	min:3mm - max:15mm (Pressed by a spring)
Blotting reagents	WSE-7210 EzFastBlot HMW/AE-1465 EzFastBlot/AE-1460 EzBlot
PVDF membrane	WSE-4050/4051/4053/4054
Absorbent paper	**T:0.9mm CB-06A/CB-09A** (our recommend)
Dimensions /Weight	246mm(W)x145mm(D)x92mm(H) · 1.8kg

Blotting reagents	Page
QBlot kit series	P42
WSE-7210 EzFastblot HMW AE-1465 EzFastBlot AE-1460 EzBlot	P43-44
PVDF membrane	P45
Absorbent paper	P46

Transfer 5min

Electrode 205 x 100mm

WSE-4025 HorizBlot 2M



The main unit is machine washable.
(Please air-dry after washing.)

Compatible with various blotting reagents

- **WSE-4056/7/8 QBlot kit 5-30 min (P42)**
- **WSE-7210 EzFastBlot HMW 30-60 min (P43)**
- **AE-1465 EzFastBlot 10-30 min (P44)**
- **AE-1460 EzBlot 30-60 min (P44)**

Simply place the upper electrode (cathode) on top to lock it securely.
To unlock, simply pull the levers on both sides up slightly.
When setting the upper electrode, lower it gently and keep it level.

Blotting roller
It effectively removes air bubbles.

Code	Product	Quantity
2322466	WSE-4025 HorizBlot 2M	1
2322467	WSE-4025M HorizBlot 2M with Menbranes and Absorbent Paper	1 set
2322479	Blotting roller	1

WSE-4045 HorizBlot 4M

for four mini gel Blotting Apparatus

- **Use EzFastBlot for high-speed semi-dry blotting!**
- **Use EzFastBlot HMW for blotting high-molecular-weight proteins!**

The HorizBlot 4M is a semi-dry blotting apparatus. It accommodates four mini-gels and supports both standard and high-speed blotting (please use the high-speed blotting buffer).

	WSE-4045 HorizBlot 4M
Uses	Semi dry blotting
Blotting size	max 205(W)x200mm(H) **Mini gel x 4**
Electrode	Platinum-titanium electrode (Anode) Stainless steel electrode(cathode)
Electrode distance	min:3mm - max:15mm (Pressed by a spring)
Blotting reagents	WSE-7210 EzFastBlot HMW/AE-1465 EzFastBlot/AE-1460 EzBlot
PVDF membrane	WSE-4050/4051/4053/4054
Absorbent paper	**T:0.9mm CB-06A/CB-09A/CB-13A/CB-20A**(our recommend)
Dimensions /Weight	246mm(W)x235mm(D)x92mm(H) · 3.0kg

Blotting reagents	Page
QBlot kit series	P42
WSE-7210 EzFastblot HMW AE-1465 EzFastBlot AE-1460 EzBlot	P43-44
PVDF membrane	P45
Absorbent paper	P46

Transfer 5min

Electrode 205 x 200mm

WSE-4045 HorizBlot 4M

The main unit is machine washable.
(Please air-dry after washing.)

Simply place the upper electrode (cathode) on top to lock it securely.
To unlock, simply pull the levers on both sides up slightly.
When setting the upper electrode, lower it gently and keep it level.

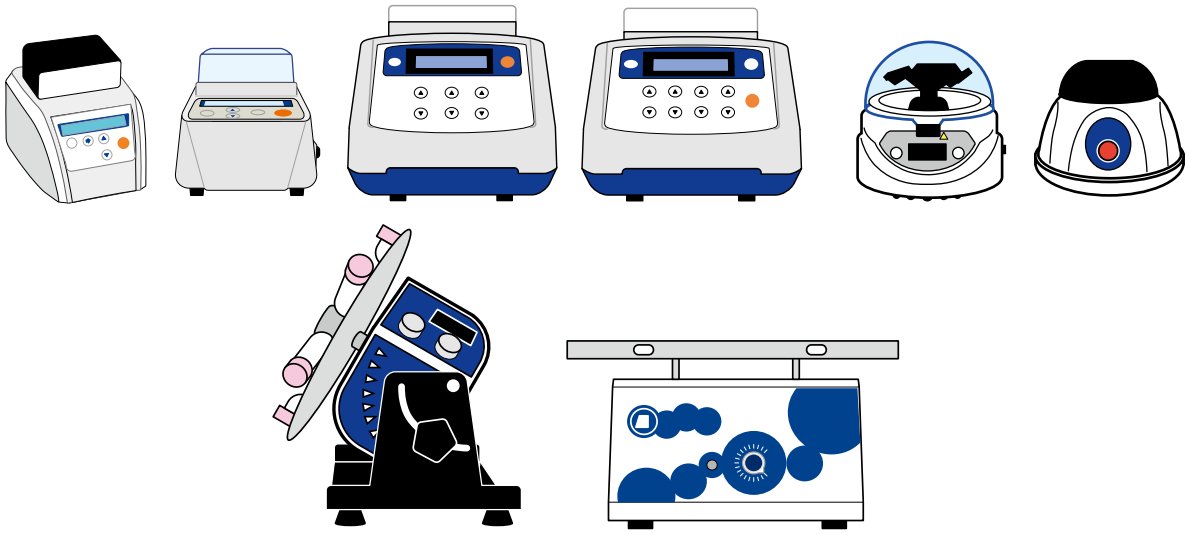
Compatible with various blotting reagents

- **WSE-4056/7/8 QBlot kit 5-30 min (P42)**
- **WSE-7210 EzFastBlot HMW 30-60 min (P43)**
- **AE-1465 EzFastBlot 10-30 min (P44)**
- **AE-1460 EzBlot 30-60 min (P44)**

Blotting roller
It effectively removes air bubbles.

Code	Product	Quantity
2322476	WSE-4045 HorizBlot 4M	1
2322477	WSE-4045M HorizBlot 4M with Menbranes and Absorbent Paper	1 set
2322479	Blotting roller	1

ATTO General-Purpose Laboratory Equipment Series



Page	Category	Product
81	Block Incubator	WSC-2610 MyMiniBLOCK WSC-2615 MyMiniBLOCK C&H
83		WSC-2620 PowerBLOCK WSC-2630 PowerBLOCK Shaker
85	Small centrifuge	WSC-2700 MyMiniSpin
86	Vortex mixer	WSC-2800 MyMiniVortex
87	Rotary mixer	WSC-2900 Rotator atto
88	Shaker	WSC-2400 See-saw Shaker atto
89	Gel dryer	AE-3711 Rapi Dry Mini

WSC-2610 MyMiniBLOCK

Palm-sized Compact Block Incubator

- Sample preparation for electrophoresis
- Enzymatic reactions
- Suitable for experiments involving various heating methods

Handheld model
Operating temperature range: Room temperature +5°C to 100°C
Seven types of dedicated blocks available (optional)

	WSC-2610 MyMiniBLOCK
Set temperature	Room temperature +5℃-100℃
Timer	0-999（sec or min）
Program	9 files / 2 steps each
Temperature accuracy	≦ ±0.5℃ （Temperature inside the tube）
Heating rate	20℃→100℃ less than 15min
Power	DC24V　40W
AC adaptor	input 100-240V
Dimension(mm)	120(W)x152(D)x112(H)
Weight	0.85kg

WSC-2610 MyMiniBLOCK　Blocks are sold separately.

WSC-2615 MyMiniBLOCK C&H

Compact Block Incubator with Cooling Function

- Preparation of samples for electrophoresis
- Denaturation and reactions of DNA/RNA
- Transformation of E. coli
- Various enzymatic reactions
- Heating, cooling, and temperature control of solutions, etc.

Handheld model
Operating range: 0°C to 100°C (at 20°C ambient temperature)
Seven types of dedicated blocks available (optional)

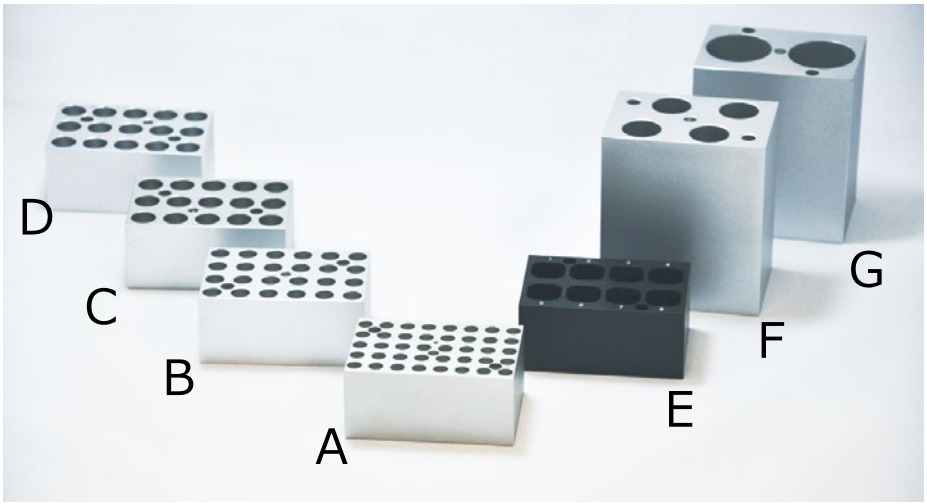
	WSC-2615 MyMiniBLOCK C&H
Set temperature	0℃-100℃※
Timer	0-999（sec or min）
Program	9 files / 2 steps each
Temperature accuracy	100℃±0.5℃　40℃±0.3℃
Heating rate	20℃→100℃ 15min以下 20℃→0℃ 30min以下
Power	DC24V　60W
AC adaptor	input 100-240V　output DC24V 72W
Dimension(mm)	123(W)x165(D)x115(H)
Weight	1.2kg

※The cooling temperatures listed above are based on an ambient temperature of 20°C.
In locations with higher room temperatures, temperature control may be limited.

WSC-2615 MyMiniBLOCK C&H　Blocks are sold separately.

Aluminum block for WSC-2610 MyMiniBLOCK/2615 MyMiniBLOCK C&H

MyMiniBLOCK and MyMiniBLOCK C&H do not include blocks. You can choose from blocks designed for 0.2 mL, 0.5 mL, 1.5 mL, 2.0 mL, square cells, 15 mL, or 50 mL tubes. Please refer to the table below to select the appropriate block based on the container you are using.



	Code	Product	Inner diameter x depth	Base shape
A	4002640	40本x0.2mL M.T block (2610/15) A	Φ6.1x17mm	conical
B	4002641	24本x0.5mL M.T block (2610/15) B	Φ7.9x27mm	conical
C	4002642	15本x1.5mL M.T block (2610/15) C	Φ10.8x30mm	conical
D	4002643	15本x2.0mL M.T block (2610/15)D	Φ10.8x30mm	Round bottom
E	4002644	8本x12.5x12.5x32mm square cell block (2610/15) E	13x13x32mm	Flat-bottom
F	4002645	4本x15mL C.T block (2610/15) F	Φ16.9x80mm	Flat-bottom
G	4002646	2本x50mL C.T block (2610/15) G	Φ29x80mm	Flat-bottom

To improve the fit between the block and the tube, adding a small amount of water (such as distilled water) to the hole in the block can help improve temperature accuracy.
Please check the shape of the tube you are using and the shape of the hole in the block before making your selection.

Code	Product	Quantity
4002610	WSC-2610 MyMiniBLOCK	1
4002615	WSC-2615 MyMiniBLOCK C&H	1
4002640	40x0.2mL M.T block (2610/15) A	1
4002641	24x0.5mL M.T block (2610/15) B	1
4002642	15x1.5mL M.T block (2610/15) C	1
4002643	15x2.0mL M.T block (2610/15) D	1
4002644	8x12.5x12.5x32mm square cell block (2610/15) E	1
4002645	4x15mL C.T block (2610/15) F	1
4002646	2x50mL C.T block (2610/15) G	1

WSC-2620 PowerBLOCK

High-Performance General-Purpose Block Incubator

WSC-2630 PowerBLOCK Shaker

Features a shaking function! High-performance general-purpose block incubator

The PowerBLOCK series includes a versatile model (WSC-2630) capable of cooling, heating, and mixing.
By combining it with optional blocks, you can heat, cool, and mix a variety of containers.

- **Electrophoresis sample preparation**
- **Enzymatic reactions**
- **Suitable for experiments involving various heating and cooling processes**

WSC-2620 PowerBLOCK **Fast temperature control**
Supports temperatures from -5°C to 100°C
15 types of dedicated blocks (optional)

WSC-2630 PowerBLOCK Shaker **Temperature Control + Mixing**
Operating range: 4°C–100°C
15 types of dedicated blocks (optional)

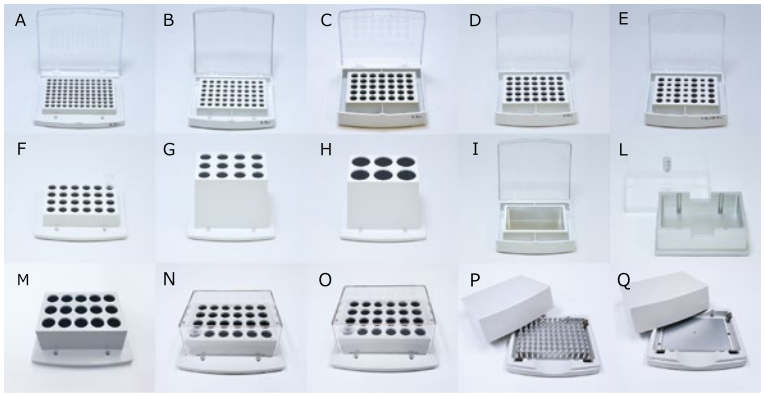
	WSC-2620 PowerBLOCK	WSC-2630 PowerBLOCK Shaker
Set temperature	-5℃-100℃ (RT 25℃) (When the room temperature is 20°C, it is -10°C)	4℃-100℃ (RT 25℃) (When the room temperature is 20°C, it is -0°C)
Timer	1min-99h59min	1min-99h59min
Program	5 files / Can be combined	5 files / Can be combined
Temperature accuracy	≦ ±0.5℃ (Temperature inside the tube)	≦ ±0.5℃ (Temperature inside the tube)
Heating rate	20℃→100℃ 15min 以下	20℃→100℃ 15min 以下
Cooling rate	20℃→ −5℃ less than 30min 20℃→ −10℃ less than 30min	100℃→ 20℃ less than 15min RT→ RT−20℃ less than 30min
Rotational speed	−	200-1500rpm
Power	AC100V-115V 200W	AC100V-115V 150W
Dimension(mm)	212(W)x300(D)x180(H)	220(W)x300(D)x170(H)
Weight	5.0kg	8.5kg

Code	Product	Quantity
4002620	WSC-2620 PowerBLOCK	1
4002630	WSC-2630 PowerBLOCK Shaker	1

Aluminum block

Aluminum block for WSC-2620 PowerBLOCK / WSC-2630 PowerBLOCK Shaker

Please select a block from the table below based on the container you are using.
The WSC-2620 and 2630 use the same block.



	Code	Product	Inner diameter x depth	Base shape	Operating temperature ℃	Max number of spin rpm
A	4002650	96x0.2mL M.T block (2620/30) **A**	Φ6.7x15mm	conical	-10~100	1500
B	4002651	54x0.5mL M.T block (2620/30) **B**	Φ7.9x23mm	conical	-10~100	1500
C	4002652	35x1.5mL M.T block (2620/30) **C**	Φ10.8x30mm	conical	-10~100	1500
D	4002653	35x2.0mL M.T block (2620/30) **D**	Φ10.8x30mm	Round bottm	-10~100	1500
E	4002654	15X0.5mL+20X1.5mLM.T block (2620/30) **E**	Φ7.9x23mm Φ10.8x30mm	conical	-10~100	1500
F	4002655	24x φ 12mm centrifuge tube block (2620/30) **F**	Φ12x30mm	Flat-bottom	0~100	1200
G	4002656	12x15mL centrifuge tube block (2620/30) **G**	Φ16.9x98mm	Flat-bottom	0~100	—
H	4002657	6x50mL centrifuge tube block (2620/30) **H**	Φ29x98mm	Flat-bottom	0~100	—
I	4002658	103x67x30mm hot tub block (2620/30) **I**	103x67x30mm	Flat-bottom	0~100	1500
L	4002661	96 deep well plate block (2620/30) **L**	130x88x40mm	Flat-bottom	8~80	900
M	4002662	15x5mL centrifuge tube block (2620/30) **M**	Φ16.5x47mm	conical	0~100	1200
N	4002663	24x2.0mL M.T block (2620/30) **N**	Φ10.8x34mm	Round bottom	0~100	1200
O	4002664	24x1.5mL M.T block (2620/30) **O**	Φ10.8x34mm	conical	0~100	1200
P	4002665	96 deep well plate block (2620/30) **P**	—	rod-shaped	0~100	1200
Q	4002666	96 well plate block (2620/30) **Q**	—	Flat	0~100	1200

* The wells for F/G/H centrifuge tubes in Block F have flat bottoms.
Filling them with water improves temperature accuracy.
* Block G for centrifuge tubes is not suitable for mixing applications with the WSC-2630, but it can be used for temperature control.
* The lid for Block L (for deep-well plates) has a heat resistance of 80°C or less.
* The differences between Blocks C/O (for 1.5 mL M.T.) and Blocks D/N (for 2.0 mL M.T.) are as shown on the right.
* The differences between Blocks L/P/Q (for titration plates) are as follows.
L: The block has a trough shape (see photo)
P: Rod-shaped to fit the 96-well block (see photo); the lid is opaque
Q: The height of the lid from the surface of the block is approximately 30 mm; deep plates can also be used; the lid is opaque

Block	1.5mL：C 型 2mL：D 型	1.5mL：O 型 2mL：N 型
Number of holes	35	24
Depth of the hole	30mm（up to two-thirds of the tube）	34mm（up to the neck of the tube）
Height of the lid	10mm（From the surface of the block）	20mm（From the surface of the block）

Code	Type Product	Quantity
4002650	96x0.2mL M.T block (2620/30) **A**	1
4002651	54x0.5mL M.T block (2620/30) **B**	1
4002652	35x1.5mL M.T block (2620/30) **C**	1
4002653	35x2.0mL M.T block (2620/30) **D**	1
4002654	15X0.5mL+20X1.5mLM.T block (2620/30) **E**	1
4002655	24x φ 12mm centrifuge tube block (2620/30) **F**	1
4002656	12x15mL centrifuge tube block (2620/30) **G**	1
4002657	6x50mL centrifuge tube block (2620/30) **H**	1
4002658	103x67x30mm hot tub block (2620/30) **I**	1
4002661	96 deep well plate block (2620/30) **L**	1
4002662	15x5mL centrifuge tube block (2620/30) **M**	1
4002663	24x2.0mL M.T block (2620/30) **N**	1
4002664	24x1.5mL M.T block (2620/30) **O**	1
4002665	96 deep well plate block (2620/30) **P**	1
4002666	96 well plate block (2620/30) **Q**	1

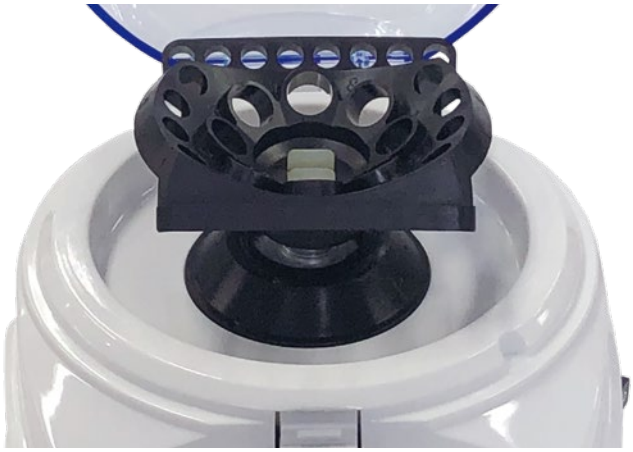
WSC-2700 MyMiniSpin

Compact centrifuge compatible with a wide variety of tubes

- **Compact, lightweight centrifuge**
- **Can centrifuge four types of tubes simultaneously (no adapter required)**
- **Includes an adapter that allows you to switch the holes for 1.5/2.0 mL tubes to accommodate 0.2 mL or 0.5 mL tubes**
- **Equipped with a timer function**
- **Turns on and off when the lid is opened or closed**

MyMiniSpin is a compact, space-saving centrifuge. It is used for spin-down of solutions in Eppendorf tubes and similar containers.
It accommodates four types of tubes, and provided they are properly balanced, they can be centrifuged simultaneously.
By using a tube adapter, tubes can be placed in holders of different sizes for centrifugation.
Centrifugation can be started and stopped simply by opening and closing the lid, and a timer function is also available.

	WSC-2700 MyMiniSpin
Max rpm	6000rpm（2300xg）
Timer	1 sec-9999 min
Power	AC100V 50/60Hz　45W
Dimension	156（W）x176（D）x121mm（H）
Weight	1.6kg
Content	MyMiniSpin x 1 0.5mL Tube adaptor : 8 0.2mL Tube adaptor : 8



2.0/1.5 mL tubes: Attaching the included adapter to the tube opening allows you to use 0.2 mL and 0.5 mL tubes.
Please use the 0.2 mL 8-tube strip without cutting it.

	Holder opening diameter	Tube diameter	Lid diameter (opening)
0.2mL tube	Φ 6.05mm	＜6.05mm	6.5mm
0.5mL tube	Φ 8.15mm	＜7.75mm	8.2mm
1.5/2.0mL tube	Φ 11.02mm	＜10.62mm	11.05mm

Code	Product	Quantity
4002700	WSC-2700 MyMiniSpin	1

WSC-2800 MyMiniVortex

A compact yet powerful vortex mixer

- **Compact, lightweight, and space-saving vortex mixer**
- **Capable of mixing Eppendorf tubes and 15 mL/50 mL conical tubes**
- **Powerful performance despite its small size!**
- **Touch-activated operation / Continuous operation via buttons**

MyMiniVortex is a compact, space-saving vortex mixer. It is used for mixing in containers ranging from Eppendorf tubes to 15–50 mL conical tubes. Although the unit is small, it delivers powerful mixing performance. It supports both touch-activated operation and continuous operation via buttons.

	WSC-2800 MyMiniVortex
RPM	4000rpm
Mode	Toluch operation/Continuas operation
Rotational orbit	4.5mm
Maximum liquid volume for mixing	50mL
Power	DC12V 0.6A
AC adaptor	AC100-240V 50/60Hz　0.3A
Dimension	110（W）x110（D）x86mm（H）
Weight	1.1kg
Operating Environment	4° C–40° C (no condensation)

50mL tube

15mL tube

1.5mL tube

Code	Product	Quantity
4002800	WSC-2800 MyMiniVortex	1

WSC-2900 Rotator atto

Compact centrifuge compatible with a wide variety of tubes

- **Extraction of samples such as DNA and proteins**
- **Mixing for cell culture**
- **Immunoprecipitation**

The “Rotator atto” is a rotary mixing device. It can mix 50 mL and 15 mL conical tubes, as well as 1.5 mL Eppendorf tubes. The turntable can be adjusted from a vertical position (0 °) to a horizontal position (90 °). By changing the angle, the solution inside the tubes can be stirred efficiently.
When using the stacking holder (optional), turntables A, B, C, and E (optional) can be stacked in two tiers. This allows for the simultaneous rotation of a large number of tubes.

	WSC-2900 Rotator atto
RPM	10-80rpm
Angle adjustment range	0° -90°
Timer	1-9999min
Turntable (Option)	A : 50mL Conical tube x10 B : 15mL Conical tube x18 C : 1.5mL Eppen Tube x64 E : 50mLx10/15mLx10/1.5mLx30 ※ Can be stacked in two layers using a stacking holder
Power	AC100V 50/60Hz 35W
Dimension	206（W）x260（D）x300mm（H）
Weight	4.5kg（without tuntable）
Operating Environment	4℃ -45℃（no condensation）

Stacking Holder

To stack two turntables on top of each other, use the optional “stacking holder.”

Turntable · Stacking Holder（Option）

Turntable A	Turntable B	Turntable C	Turntable E
50mLx10	15mLx18	1.5mLx64	50mLx10、15mLx10 1.5mLx30
			
Code.4002940	Code.4002941	Code.4002942	Code.4002944

Code	Product	Quantity
4002900	WSC-2900 Rotatoratto	1
4002940	Turntable (WSC-2900) **A**	1
4002941	Turntable (WSC-2900) **B**	1
4002942	Turntable (WSC-2900) **C**	1
4002944	Turntable (WSC-2900) **E**	1
4002949	Stacking Holder (WSC-2900)	1

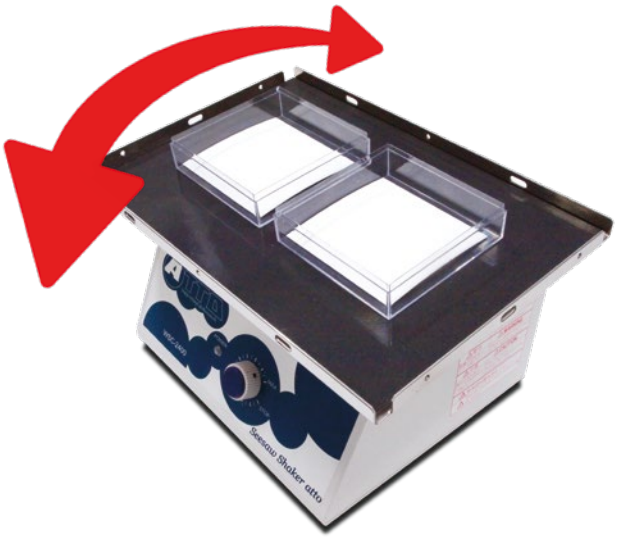
WSC-2400 Seesaw Shaker atto

A shaker with minimal shaking inconsistencies

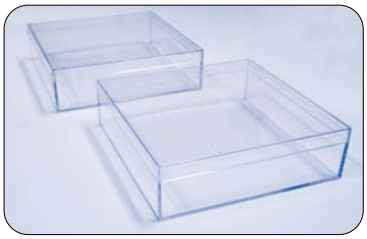
- **Reactions in each step of Western blotting**
- **Gel staining and destaining procedures**
- **Tubing shaking**

The “Seesaw Shaker Ratto” is a seesaw-style shaker designed for use in Western blotting applications such as blocking, antibody incubation, washing, and gel staining.
Compared to standard seesaw-style shakers, the pivot point of the shaking platform has been lowered and the amplitude increased, ensuring that the solution is thoroughly mixed throughout the entire sample—even at low speeds—without any unevenness. It is also ideal for staining delicate gels.
Because it minimizes agitation inconsistencies, it is particularly well-suited for highly sensitive detection methods such as Western blotting and silver staining. It can shake up to six styrofoam cases simultaneously.

Move the shaking platform like a metronome.



	WSC-2400 Seesaw Shaker atto
Shaking	Speed: Up to 48 rpm　Angle: ±8 degrees Seesaw-style
Shaking platform	309(W)x202mm(H)
Dimensions / Weight	303(W)x205(D)x165.2mm(H)・4.7kg
Power	AC100-120V　50/60Hz　5W
Accessories	Stick Sheet（non-slip）x 1 Styrofoam case x 2、AC cable、Manual



Styrofoam cases
Two 10cm x 10cm styrofoam cases are included as standard.

Can be used for tube shaking
By using the optional mounting bracket, you can secure the tube to the stage and shake it, as shown in the photo.

Installation of an Upper Shaker
By adding the optional upper shaker, you can process more membranes or gels simultaneously.

Code	Product	Quantity
2312200	WSC-2400 Seesaw Shaker atto	1
2312210	WSC-2400 Upper-deck shaking table	1
2312211	Brace (Elastic cord with a hook for WSC-2400)	Set of 4
2312212	Stick Sheet (WSC-2400)	Set of 2
2312213	Styrofoam case	Set of 4

AE-3711 Rapidry Mini

Gel Dryer for Polyacrylamide gel

- **For drying polyacrylamide gels**
- **For drying and mounting gels on filter paper**
- **For long-term storage of polyacrylamide gel electrophoresis images**

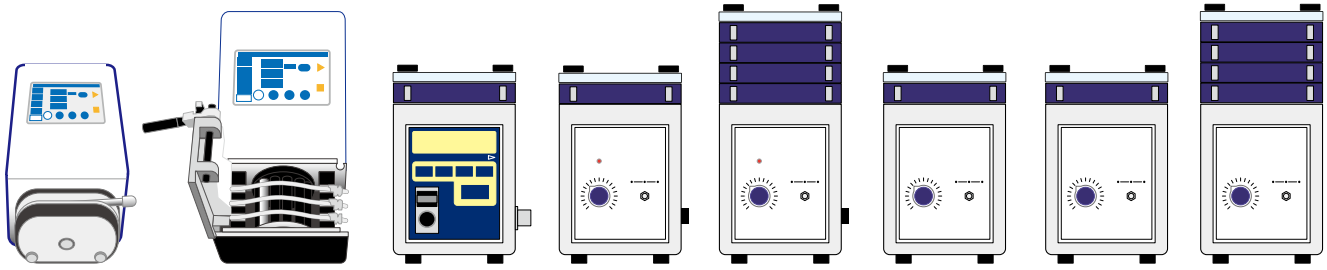
The Rapidry Mini heats from above and below and can dry and fix polyacrylamide gels onto filter paper while applying suction (a separate suction pump or aspirator is required).

	AE-3711 Rapidry Mini
Drying Section	200x190mm
Set temperature	40-80℃ Continuously variable
Timer	0-180 min With a timer alarm
Heater	Base/Top Cover
Dimension	240mm(W)x350mm(D)x135mm(H)
Weight	2.5kg
Power	AC100V 50/60Hz 90W (Max 400W)

AE-3711 Rapidry Mini

Code	Type Product	Quantity
2385210	AE-3711 Rapidry Mini	1

ATTO Peristaltic Pump Series



“ Perista Pump PERISTA PUMP” is a registered trademark of ATTO.

The “Perista Pump” is a type of pump (also known as a roller pump, tube pump, or peristaltic pump) that delivers fluid by squeezing soft tubing, such as silicone, with rollers. Since the only part that comes into contact with the solution is the interior of the tubing, contamination is prevented, and fluid can be delivered under sterile conditions. Additionally, the only part that needs to be cleaned after use is the tubing.

■ Applications

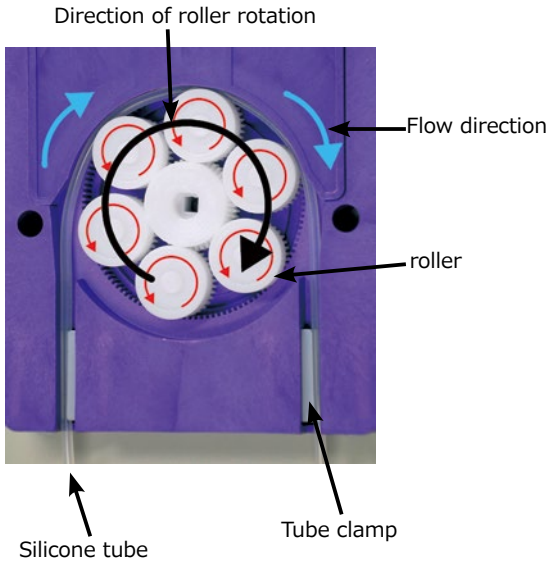
- As a flow pump for chromatography
- As a flow pump for fermentation broth
- As a flow pump for perfusion culture and perfusion fixation
- As a flow pump for drug perfusion experiments
- As a solution preparation pump
- As a perfusion flow pump

In addition, these pumps are widely used in various settings, from research laboratories to manufacturing plants.

Precautions for Extended Continuous Operation of the Perista Pump

- Wear and tear on silicone tubing
- Wear and tear on the cassette and rollers
- Wear and tear on internal gears (repairs will be required)

Please replace worn parts with new ones.



WSP-3310 PeristaQuantumPump

Easy to operate with a touch panel! The new digital Perista Pump

- Achieves precise, stable flow rates for accurate liquid delivery
- Automatic operation supports timer-controlled and fixed-volume delivery
- Compatible with various solutions thanks to the use of highly chemical-resistant and durable olefin tubing
- Enhanced durability and extended service life through the use of a stepper motor
- Quick tube replacement via one-touch attachment and removal
- Easy calibration with semi-automatic operation

Combining nearly 60 years of development experience since our founding with the latest technology, we have refined our product into an innovative, compact, high-performance digital pump that offers both ease of use and superior performance. By adopting a new roller system, we have reduced the effects of pulsation while achieving highly reproducible flow accuracy and stability. Furthermore, we have pursued intuitive and simple operation, enabling one-handed, one-touch tube attachment and removal, as well as touch-panel controls that anyone can use with ease. Furthermore, using the PQP control software, external control can be easily programmed. As an innovative fluid control solution that combines ease of use with high performance, this product is ideal for users seeking reliability and convenience.

	WSP-3310 PeristaQuantumPump	WSP-3310-2 PeristaQuantumPump
Channel	1 ch	2 ch
Flow rate	0.01~13mL/min : 82mm Olefin tube with a lure 2/4　0.01~40mL/min : 82mm Olefin tube with a lure4/6	
Flow stability	± 1 % /h（82mm Olefin tube with a lure2/4）	
Compatible viscosity	Less than 1.5Pa・s（1,500cp）	
lifting height	Extrusion : 21m　　Intake : 6m	
Tube	Olefin tube2/4　Olefin tube4/6	
Tube life	7 days（Olefin tube / Continuous use at maximum flow rate）	
Roller	6-piece SUS304	
Touch panel	3.5-inch resistive touchscreen	
Setting	Flow rate : mL/min、mL/h（0.1-100% /0.01-50rpm）	
External control	Connect to a PC via the USB Type-B port: PQP Control Software (Windows)	
Operating Environment	Temperature: 4–40° C; Humidity: No condensation	
Motor	Stepper motor	
Material	AL・SUS・SPCC・POM	
Dimensions / Weight	110mm(W) x 200mm(D) x 130mm(H)・2.2kg	110mm(W) x 260mm(D) x 130mm(H)・2.6kg
Power	AC100~240V　50/60Hz　・　13.3VA	AC100~240V　50/60Hz　・　14.4VA
Contents	PeristaQuantumPump、AC Cable、Manual、 Pump head x 1、82mm Olefin tube with a lure 2/4 x 1、 Olefin tube 2/4（1m）x 1	PeristaQuantumPump、AC Cable、Manual、 Pump head x 2、82mm Olefin tube with a lure 2/4 x 2、 Olefin tube 2/4（1m）x 2

Code	Product	Quantity
1221430	WSP-3310 PeristaQuantumPump	1
1221431	WSP-3310-2 PeristaQuantumPump（2 ch）	1
1221441	Additional Pump Headset (WSP-3310)	1 set
1221438	PQP Control Software (with WSP-3310 USB Cable)	1 set
1221448	WSP-3310 USB Cable	1
1221417	WSP-3300/3310 USB Hub	1
1221446	Foot Switch (WSP-3310)	1

WSP-3300 PeristaQuantumPump

Delivering world-class functionality, performance, and reproducibility! The new digital Perista Pump

- ▶ Achieves low-flow conditions using a 12-roller rotating system
- ▶ Ensures high flow rate accuracy through stable flow rates and high reproducibility
- ▶ Extends tubing lifespan through optimal discharge pressure control
- ▶ Easy operation and setup via touch panel
- ▶ BioSafe, sterile, contamination-free, and hygienic fluid delivery
- ▶ Improves productivity through external control, foot switches, and remote operation

This is the original peristaltic quantum pump, embodying the essence of ATTO' s technology. Twelve rollers minimize pulsation, enabling reproducible fluid delivery with high flow rate accuracy. Thanks to optimal compression control, the tubing lifespan remains over two weeks even during continuous operation at maximum flow rate, while maintaining flow accuracy and stability. With three flow channels, it enables the delivery of fluid to multiple targets under identical conditions at a uniform flow rate, or the delivery of multiple solutions at the same flow rate. Furthermore, using the PQP control software, external control can be easily programmed. As a flow control solution ideal for applications requiring precise flow control, this product is designed for professionals who prioritize reliability.

	WSP-3300 PeristaQuantumPump
Channel	3 ch
Flow rate	0.01~13mL/min　95mm Olefin tube with a lure 2/4 0.01~35mL/min　95mm Olefin tube with a lure 4/6
Flow stability	± 1 % /h（95mm Olefin tube with a lure 2/4）
Compatible viscosity	Less than 1.5Pa・s（1,500cp）
lifting height	Extrusion：21m　　Intake：6m
Tube	Olefin tube2/4　Olefin tube4/6
Tube life	14 days（Olefin tube / Continuous use at maximum flow rate）
Roller	12-piece　SUS304
Touch panel	4.3-inch resistive touchscreen
Setting	Flow rate：mL/min、mL/h（0.1-100% /0.01-50rpm）
External control	Connect to a PC via the USB Type-B port: PQP Control Software (Windows)
Operating Environment	Temperature: 4–40° C; Humidity: No condensation
Motor	Stepper motor
Material	AL・SUS・SPCC・POM
Dimensions / Weight	130mm(W) x 260mm(D) x 135mm(H)・5kg
Power	AC100~240V　50/60Hz　・20VA
Contents	PeristaQuantumPump、AC Cable、Manual、Pump head x 1、95mm Olefin tube with a lure 2/4 x 3、Olefin tube 2/4（1m）x 1

Code	Product	Quantity
1221400	WSP-3300 PeristaQuantumPump	1
1221413	PQP Control Software (with WSP-3300 USB Cable)	1 set
1221416	WSP-3300 USB Cable	1
1221417	WSP-3300/3310 USB Hub	1
1221470	Foot Switch (WSP-3300	1

Tube for WSP-3310/3300

The PeristaQuantumPump comes with two types of tubing designed for easy installation: “Luer-ended olefin tubing” and “Luer-ended silicone tubing.” Olefin tubing offers high chemical resistance and durability, making it suitable for long-term continuous operation. Silicone tubing is autoclavable, making it ideal for sterile fluid delivery applications.
*The PeristaQuantumPump comes standard with “Luer-ended olefin tubing.”

Olefin tube with a lure

Olefin tube with a lure 2/4
(Inner diameter 2 mm / Outer diameter 4 mm)

Olefin tube with a lure 4/6
(Inner diameter 4 mm / Outer diameter 6 mm)

WSP-3300＝95mm　Material: Olefin/Silicone
WSP-3310＝82mm　Material: Olefin/Silicone

Chemical resistance	Olefin	Silicone
Isopropyl alcohol	○	x
Ethyl alcohol	○	○
Methyl alcohol	○	△
Hydrochloric acid (20%, 20° C)	○	x
Sulfuric acid（10%、20℃）	○	○
Sodium hydroxide（10%、20℃）	○	x
Potassium hydroxide	△	x
Toluene	△	x

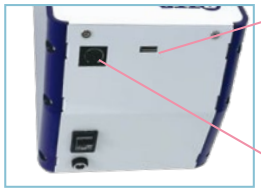
価格

Code	Product	Quantity
1221465	82mm Olefin tube with a lure 2/4 (WSP-3310)	Set of 10
1221466	82mm Olefin tube with a lure 4/6 (WSP-3310)	Set of 10
1221478	82mm Silicone tube with a lure 2/4 (WSP-3310)	Set of 10
1221473	82mm Silicone tube with a lure 4/6 (WSP-3310)	Set of 10
1221461	95mm Olefin tube with a lure 2/4 (WSP-3300)	Set of 10
1221463	95mm Olefin tube with a lure 4/6（WSP-3300）	Set of 10
1221477	95mm Silicone tube with a lure 2/4（WSP-3300）	Set of 10
1221472	95mm Silicone tube with a lure 4/6（WSP-3300）	Set of 10
1221462	Orefin tube 2/4(5m) (WSP-3300/3310)	1
1221464	Orefin tube 4/6(5m) (WSP-3300/3310)	1
1221476	Silicone tube 2/4(5m) (WSP-3300/3310)	1
1221471	Silicone tube 4/6(5m) (WSP-3300/3310)	1

Other: Options for WSP-3310/3300

Code	Product	Quantity
1221441	Additional Pump Headset (WSP-3310)	1 set
1221446	Foot Switch (WSP-3310)	1
1221470	Foot Switch (WSP-3300)	1

The PeristaQuantumPump features a USB port and a mini-DIN connector on the rear panel. These ports allow you to connect the pump to a PC for external control or to a foot switch for START/STOP control.



USB Type-C
Connect to a PC and control it externally using PQP control software or similar.

8-pin mini-DIN connector
Connect the foot switch

WSP-3310 Rear View

USB Type-B
Connect to a PC and control it externally using PQP control software or similar.

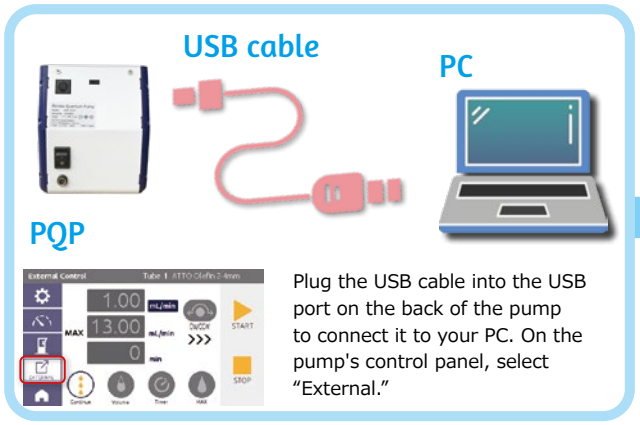
4-pin mini-DIN connector
Connect the foot switch

WSP-3300 Rear View

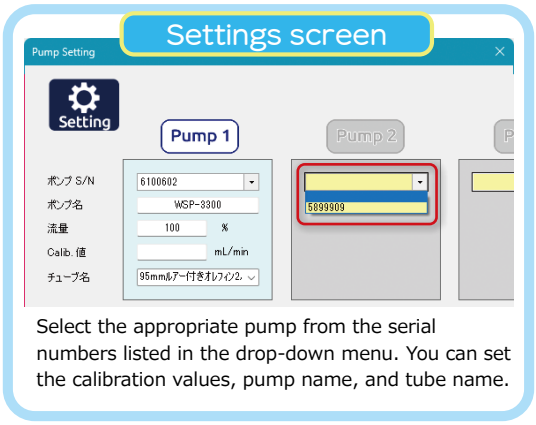
Foot Switch
(Option)

PQP Control Software

Dedicated External Control Software for the Perista Quantum Pump



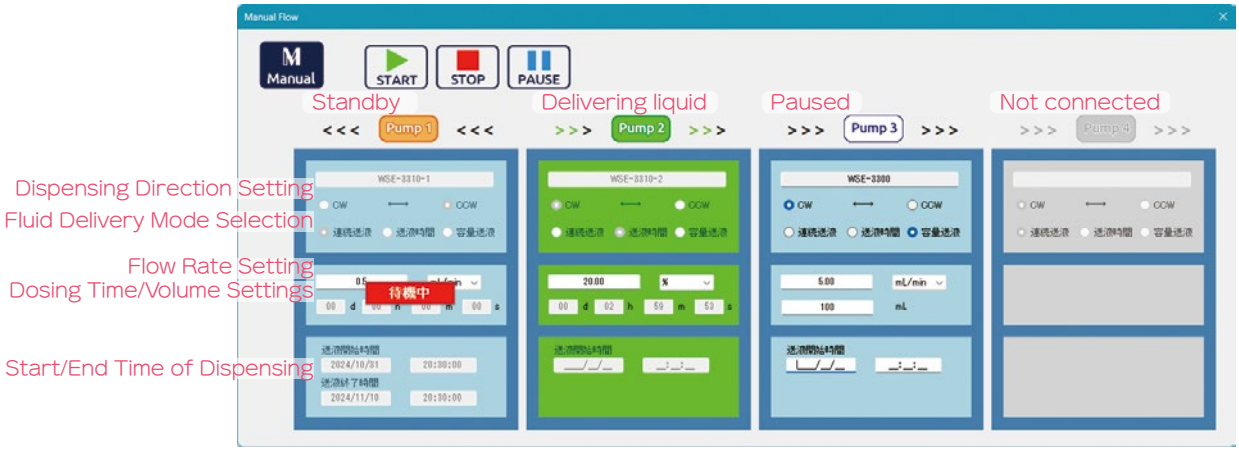
Plug the USB cable into the USB port on the back of the pump to connect it to your PC. On the pump's control panel, select "External."



Select the appropriate pump from the serial numbers listed in the drop-down menu. You can set the calibration values, pump name, and tube name.

The Peristaltic Quantum Pump can be externally controlled by connecting it to a PC via a USB port, enabling precise flow rate control through complex delivery methods. Using the dedicated programming software, "PQP Control Software" (optional), you can remotely control the pump' s start/stop functions, CW/CCW rotation, flow rate, and rotation speed, as well as perform automated delivery based on a schedule.
Various applications are possible, including simultaneous control of multiple units, individual control, and gradient preparation. Up to four units can be controlled from a single PC.

- **Dedicated external control software for Peristaltic Quantum pumps**
- **Capable of synchronized, independent, or simultaneous control of up to four pumps**
- **Supports calibration, manual delivery, and programmed delivery**
- **Auto-start and auto-stop control**
- **Supports constant flow rate control, gradient flow rate control, and mixed flow rate control**
- **Capable of programming 20 steps, 100 repetitions, and long-term sequences**
- **Intuitive operation allows for flexible programming**
- **Ideal for programming applications such as chromatography, fermentation culture fluid delivery, and drug solution recirculation experiments**
- **Suitable for a wide range of applications, including not only research facilities but also production plants.**



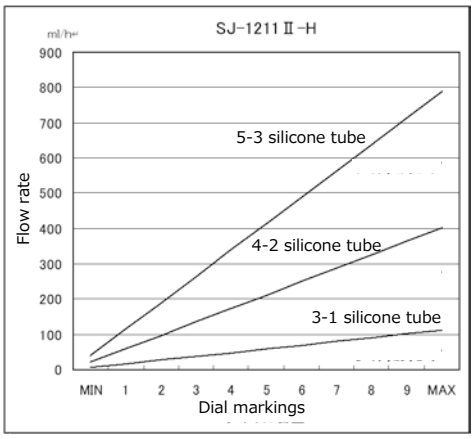
Code	Product	Quantity
1221438	PQP Control Software (with WSP-3310 USB cable)	1 set
1221448	WSP-3310 USB cable	1
1221413	PQP Control Software (with WSP-3300 USB cable)	1 set
1221416	WSP-3300 USB cable	1
1221417	WSP-3300/3310 USB Hub	1

The PQP control software comes with one USB cable. Additional USB cables are required to control two or more pumps.
A separate installation and adjustment service fee applies for the setup and instruction of the PQP control software.

SJ-1211 II-H Perista Pump

General-purpose high-flow pump

- **Flow rate: 7–700 mL/h (total range when using 1 mm, 2 mm, or 3 mm inner diameter tubing)**
- **Flow direction switch**
- **Flow rate adjustment dial**



SJ-1211 II-H Perista Pump

Flow Rate Guide Chart

The graph shows the flow rate for silicone tubes with inner diameters of 1 mm, 2 mm, and 3 mm. Please refer to the graph above for the dial scale and approximate flow rates. When using the product, please verify the actual measured flow rate per unit time.

	SJ-1211 II-H Perista Pump
Flow rate	**7-700mL/h** (Inner diameter 1-3mm tube)
Flow rate range	**1 x - 20 x** (Tubes of the same diameter)
Channel	**1 ch**
External control	–
Dimension	110(W)x150(D)x180mm(H)
Weight	2.0kg
Power	AC100V 50/60Hz 12VA
Contents	SJ-1211 II、Caset A set (Pre-installed) Silicone tube set (5-3/4-2/3-1mm、1m each) Manual

Code	Product	Quantity
1221300	SJ-1211 II-H Perista Pump (High flow)	1

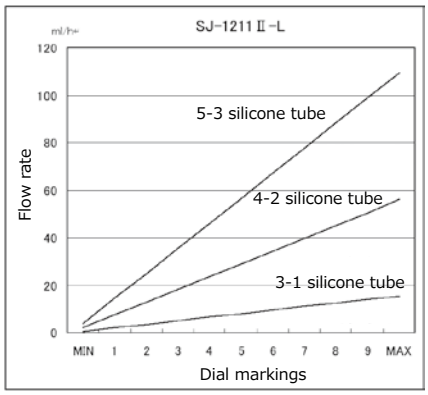
SJ-1211 Ⅱ -L Perista Pump

General-purpose low-flow, multi-channel pump

- **Flow rate: 0.7–100 mL/h (total range when using 1 mm, 2 mm, or 3 mm inner diameter tubing)**
- **Multi-channel type (2-channel, 3-channel, or 4-channel)**
- **Flow direction switch**
- **Flow rate adjustment dial**

SJ-1211 Ⅱ -L（1 ch）　SJ-1211 Ⅱ -L-2（2 ch）　SJ-1211 Ⅱ -L-3（3 ch）　SJ-1211 Ⅱ -L-4（4 ch）

	SJ-1211Ⅱ-L	SJ-1211Ⅱ-L-2	SJ-1211Ⅱ-L-3	SJ-1211Ⅱ-L-4
Flow rate	**0.7-100mL/h** (Inner diameter 1-3mm tube)			
Flow rate range	**1 x - 30 x** (Tubes of the same diameter)			
Channel	**1 ch**	**2 ch**	**3 ch**	**4 ch**
Dimension	110(W)x150(D)x180mm(H)	110(W)x150(D)x198mm(H)	110(W)x150(D)x216mm(H)	110(W)x150(D)x234mm(H)
Weight	2.1kg	2.35kg	2.6kg	2.85kg
Power	AC100V 50/60Hz 11.8VA	AC100V 50/60Hz 12.6VA	AC100V 50/60Hz 13.4VA	AC100V 50/60Hz 14.2VA
Contents	SJ-1211 Ⅱ -L Cassette A set x 1 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual	SJ-1211 Ⅱ -L Cassette A set x 1 Additional Cassette Set x 1 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual	SJ-1211 Ⅱ -L Cassette A set x 1 Additional Cassette Set x 2 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual	SJ-1211 Ⅱ -L Cassette A set x 1 Additional Cassette Set x 3 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual



Flow Rate Guide Chart

The graph shows the flow rate for silicone tubes with inner diameters of 1 mm, 2 mm, and 3 mm. Please refer to the graph above for the dial scale and approximate flow rates. When using the product, please verify the actual measured flow rate per unit time.

Code	Product	Quantity
1221310	SJ-1211 Ⅱ -L Perista Pump (Low-Flow)	1
1221312	SJ-1211 Ⅱ -L-2 Perista Pump (Low-Flow) 2 ch	1 set
1221313	SJ-1211 Ⅱ -L-3 Perista Pump (Low-Flow) 3 ch	1 set
1221314	SJ-1211 Ⅱ -L-4 Perista Pump (Low-Flow) 4 ch	1 set

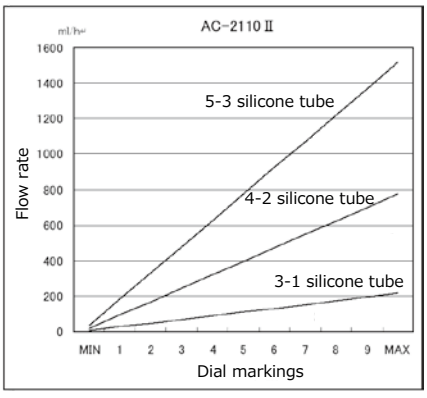
AC-2110 II Perista Pump

Externally Controlled High-Flow Pump

- **Flow rate: 5–1,500 mL/h (total range when using 1 mm, 2 mm, or 3 mm inner diameter tubing)**
- **Multi-channel type (2-channel, 3-channel, or 4-channel)**
- **External control terminals**
- **Flow direction switch**
- **Flow rate adjustment dial**

AC-2110 II（1 ch）　AC-2110 II-2（2 ch）　AC-2110 II-3（3 ch）　AC-2110 II-4（4 ch）

	AC-2110 II	AC-2110 II-2	AC-2110 II-3	AC-2110 II-4
Flow rate	**5-1500mL/h** (Inner diameter 1-3mm tube)			
Flow rate range	**1 x - 45 x** (Tubes of the same diameter)			
Channel	**1 ch**	**2 ch**	**3**	**4**
External control	YES			
Dimension	110(W)x150(D)x180mm(H)	110(W)x150(D)x198mm(H)	110(W)x150(D)x216mm(H)	110(W)x150(D)x234mm(H)
Weight	1.5kg	1.75kg	2.0kg	2.25kg
Power	AC100-240V 50/60Hz　13.3VA	AC100-240V 50/60Hz　14.6VA	AC100-240V 50/60Hz　15.9VA	AC100-240V 50/60Hz　17.2VA
Contents	AC-2110 Ⅱ Cassette A set x 1 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual	AC-2110 Ⅱ Cassette A set x 1 Additional Cassette Set x 1 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual	AC-2110 Ⅱ Cassette A set x 1 Additional Cassette Set x 2 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual	AC-2110 Ⅱ Cassette A set x 1 Additional Cassette Set x 3 Silicone tube set (5-3/4-2/3-1mm、1m each) Manual



Flow Rate Guide Chart

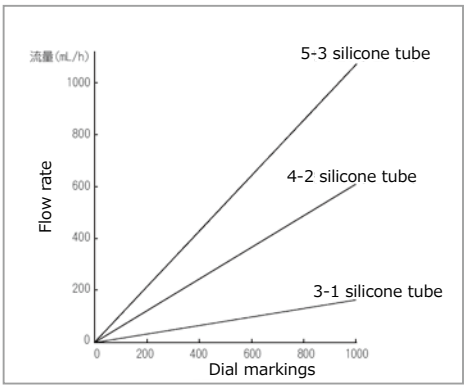
The graph shows the flow rate for silicone tubes with inner diameters of 1 mm, 2 mm, and 3 mm. Please refer to the graph above for the dial scale and approximate flow rates. When using the product, please verify the actual measured flow rate per unit time.

Code	Product	Quantity
1221330	AC-2110 II Perista Pump (High flow)	1
1221332	AC-2110 II -2 Perista Pump (High flow) 2 ch	1 set
1221333	AC-2110 II -3 Perista Pump (High flow) 3 ch	1 set
1221334	AC-2110 II -4 Perista Pump (High flow) 4 ch	1 set

AC-2120 PeristaBioMini Pump

Externally Controlled High-Precision Pump

- **Flow rate: 0.1–1000 mL/h (total range when using 1 mm, 2 mm, or 3 mm inner diameter tubing)**
- **Variable flow rate: 1–1000 times (for tubing of the same diameter)**
- **External control terminal**
- **Flow direction switch**
- **Flow rate adjustment dial (high-precision type)**



Flow Rate Guide Chart

The graph shows the flow rate for silicone tubes with inner diameters of 1 mm, 2 mm, and 3 mm. Please refer to the graph above for the dial scale and approximate flow rates. When using the product, please verify the actual measured flow rate per unit time.

AC-2120 PeristaBioMini Pump

	AC-2120 PeristaBioMini Pump
Flow rate	**0.1-1000mL/h** (Inner diameter 1-3mm tube)
Flow rate range	**1 x - 1000 x** (Tubes of the same diameter)
Channel	**1**
External control	YES
Dimension	110(W)x150(D)x180mm(H)
Weight	2.2kg
Power	AC100V 50/60Hz 10VA
Contents	AC-2120、Cassette A set (Pre-installed) Silicone tube set (5-3/4-2/3-1mm、1m each) Manual

External control terminal

Code	Product	Quantity
1221200	AC-2120 PeristaBioMini Pump	1

Perista Pump

The multi-channel model (SJ-1211Ⅱ-L/AC-2110Ⅱ) allows for the addition of up to four cassettes. To add more, please order the “Additional Cassette Set for Perista Pump.” When the rollers are worn out, select the replacement based on the cassette’s position (upper: A or middle: B). Rollers, silicone tubes, cassettes, and other components are consumables; please replace them as needed based on usage conditions. Silicone tube sizes are labeled as 3-1/4-2/5-3, which indicates the outer diameter (mm) and inner diameter (mm). Please select the tube of the required length.

Code	Product	Quantity
1292231	Cassette A set (upper) Perista Ⅰ / Ⅱ	1
1292232	Cassette B set (middle) Perista Ⅰ / Ⅱ	1
1292233	Roller A set (upper) Perista Ⅰ / Ⅱ	1
1292234	Roller A set (middle) Perista Ⅰ / Ⅱ	1
1292235	Common Roller Cover (Clear) Perista Ⅰ / Ⅱ	1
1292236	Perista Pump Addional cassette set Contents ： Cassette B set、 Fixed Stud、 Silicone tube set	1
1292213	P/N12012 Fixed stud	Set of 2
1292124	Silicone tube set(Inner diameter 1.2.3 1m each)	1
1292121	3-1Silicone tube (5m)	1
1292302	3-1Silicone tube (10m)	1
1292303	3-1Silicone tube (20m)	1
1292120	4-2Silicone tube (5m)	1
1292305	4-2Silicone tube (10m)	1
1292306	4-2Silicone tube (20m)	1
1292119	5-3Silicone tube (5m)	1
1292308	5-3Silicone tube (10m)	1
1292309	5-3Silicone tube (20m)	1
1221390	Perista Pump Ⅱ AC cable	1

Perista Pump Additional Cassette Set

・Cassette B set (middle) Perista I/II
・Fixed stud (screw x 2)
・Silicone tube set

This is a cassette for the 2- to 4-stage multi-stage Perista pump.
There is a mounting bolt on the center gear.
It can be added to the AC-2110Ⅱ and SJ-1211Ⅱ-L models.

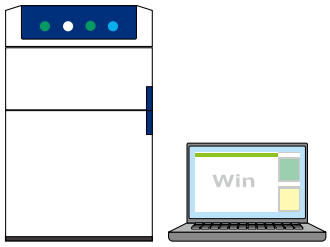
Cassette B set (middle) Perista Ⅰ/Ⅱ
This is a cassette for the 2nd to 4th stages of a multi-stage Perista pump. The center gear features a mounting bolt. It can be added to the AC-2110Ⅱ and SJ-1211Ⅱ-L models. To install it on an existing pump, a separate set of mounting studs (2 pieces) is required.

Cassette A set (upper) Perista Ⅰ/Ⅱ用
This is the top cassette for the Perista Pump. There is no connecting bolt on the center gear.

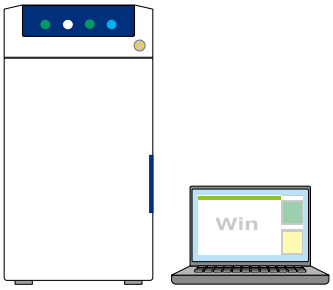
ATTO Chemiluminescence Imager series

The LuminoGraph series offers a wide range of applications through various combinations of cameras, lenses, and accessories. However, since each system has its own unique features, it can be difficult to compare them. The table below compares the LuminoGraph models by category.

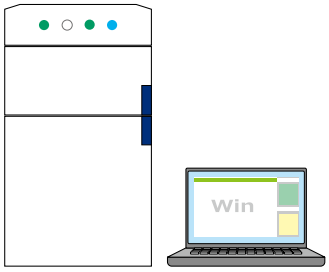
Page	Category	Product
101	High-sensitivity Cooled EM-CCD system	WSE-6270 LuminoGraph Ⅱ EM
105	High-Resolution cooled CCD system	WSE-6370 LuminoGraph Ⅲ Lite
109	Cooled CMOS system	WSE-6175 LuminoGraph I CMOS
113	IQOQ	LuminoGraph seies IQOQ ImageSaver7 EM /CS Analyzser4 security ver.up ImageSaver7 CMOS /CS Analyzser4 security ver.up



WSE-6270 LuminoGraph II EM



WSE-6370 LuminoGraph III Lite



WSE-6175 LuminoGraph I CMOS

List of Standard Specifications and Options

The LuminoGraph series is based on a high-sensitivity camera system capable of chemiluminescence imaging, and can be expanded to include fluorescence imaging, white light transmission imaging, printers, image analysis software, and a control PC system.

	WSE-6270 LuminoGraph Ⅱ EM	WSE-6370 LuminoGraph Ⅲ Lite	WSE-6175 LuminoGraph I CMOS
Camera	Cooled EM-CCD（-40℃）	Cooled CCD	Cooled CMOS
Lens	F0.8 Manual focus	F0.8 Manual focus	F0.95 Manual focus
Resolution	2460x1620	2750x2200	2688x1512
Imaging Area（Max）	273x180mm	260x200mm	196x110mm
Control software	ImageSaver7 EM	LuminoGraph Ⅲ Lite	ImageSaver7 CMOS
Optional products that can be added to the system			
Epi LED・Blue for Fluorescence Imaging	○	○	○
Epi LED・Green for Fluorescence Imaging	○	○	x
Epi LED・Red for Fluorescence Imaging	○	○	○
Epi LED・NIR for Fluorescence Imaging	○	x	x
Trans Cyan illuminator for Fluorescence Imaging	○	x	○
Trans UV illuminator for Fluorescence Imaging	○	○	x
Trans White illuminator for Colorimetric imaging	○	○	○
Windows PC	○	○	○
CS Analyzer 4	○	○	○
Printer	○	○	○
Security Software	○	x	○
IQOQ	○	○	○

WSE-6270 LuminoGraph II EM

Featuring an ultra-high-sensitivity cooled EMCCD! Chemiluminescence Imaging System

- **Ultra-high-sensitivity cooled EMCCD camera**
- **Equipped with a world-class “F0.8” high-sensitivity lens**
- **Compatible with epi-LED light sources for fluorescence imaging (optional)**
  “Blue/Red LED” and “Green/NIR LED”
- **Maximum imaging area: 273 x 180 mm**
- **High sensitivity and wide dynamic range with the “AutoExposure” function**

	WSE-6270 LuminoGraph II EM
Camera	Ultra-high-sensitivity cooled EMCCD camera(-40℃)
Resolution	2460x1620
Grayscale	16 bit (65,536) file : 16bit TIFF / 16bit CCD
Lens	F0.8 Single-focus lens
Sensitivity setting	HQ/STD/High/Ultra) / Binning
Correction function	Flat field corection / Noise filter
Optical filter	3-position manual switch (YA-3/ND-0.1/BPF525/BPF600/BPF690/LPF830)
Imaging size	106x70-273x180mm 5 position
Inner Light	Epi White LED (Synchronized with the opening and closing of the door)
Light source for Fluorescence detection	1.BlueRed LED set Blue : 460-480nm Red : 605-640nm 2.GreenNIR LED set Green : 515-540nm NIR : 715-745nm 3.CyanoView II:CyanLed:peak 505nm 4.Trans UV illuminator:peak 312nm
Control software	ImageSaver7 EM (for Windows 11)
Dimensions /Weight	365 (W) x330 (D) x 580mm (H) ・ 21 kg
Power	AC100-240V 50/60 Hz 120 W (Max)

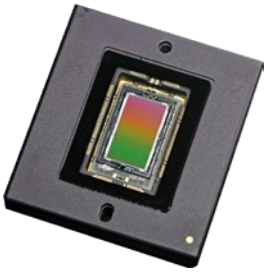
Ultra-high-sensitivity cooled EMCCD camera

The LuminoGraph II EM features an EMCCD camera equipped with a signal amplification mechanism. Sensitivity can be adjusted using EM Gain and binning. Furthermore, cooling the EMCCD to -40°C reduces noise, and the inclusion of a high-sensitivity F0.8 lens enables the detection of faint signals, such as those from luminescent samples, with high sensitivity.

- **Increased sensitivity via EM gain adjustment**
- **Increased sensitivity via pixel binning**
- **Reduced noise through -40°C cooling**
- **Incorporation of an F0.8 high-sensitivity lens**

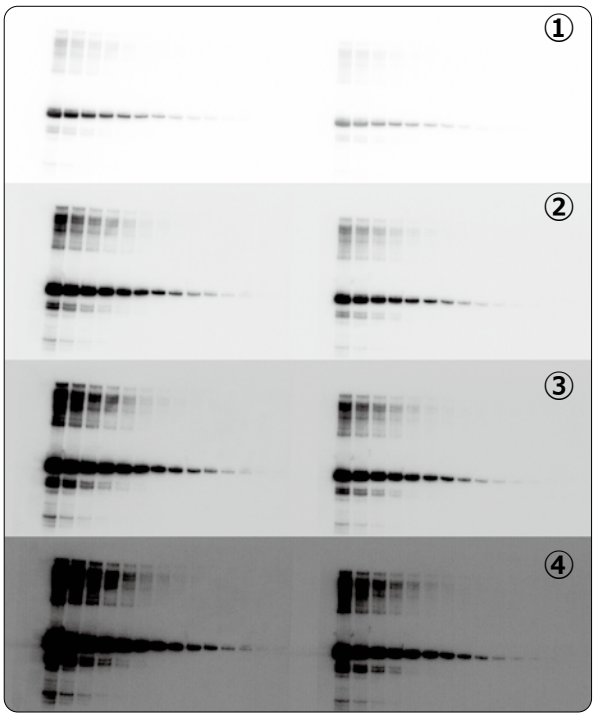
Although this system uses a high-performance cooled EMCCD camera, it automatically performs cooling and prepares for imaging simply by turning on the power. Once you launch the control software “ImageSaver7,” you can start capturing images immediately.

EM-CCD sensor
It is cooled to -40°C
inside the camera.



EM＝Electron Multiplying

Sensitivity Comparison
Exposure time : 1min / Western Blotting Sample
Gain ① HQ ② STD ③ High ④ Ultra



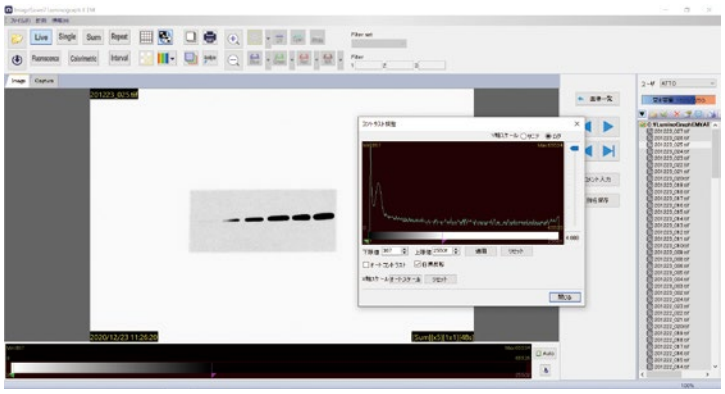
Chemiluminescence imaging

The LuminoGraph II EM is capable of imaging chemiluminescence detection samples for Western blotting, Southern blotting, and Northern blotting.

ImageSaver7 EM

Using dedicated control software, you can perform tasks such as automatic exposure of luminescent samples and automatic imaging of molecular weight markers. The automatic exposure function automatically sets the exposure time based on the sample to achieve a wide dynamic range while preventing signal saturation.

AutoExposure
Merge
Sum/Repear/Interval



Fluorescence imaging

The LuminoGraph II EM is equipped with an optional fluorescence excitation light source, and by adding an imaging filter, it enables the detection of fluorescent Western blots, various fluorescently stained gels, fluorescent proteins, and fluorescently labeled proteins. The following devices are available as fluorescence excitation light sources.

- **WSE-5610 CyanoViewⅡ**
- **BlueRed LED set**
- **GreenNIR LED set**

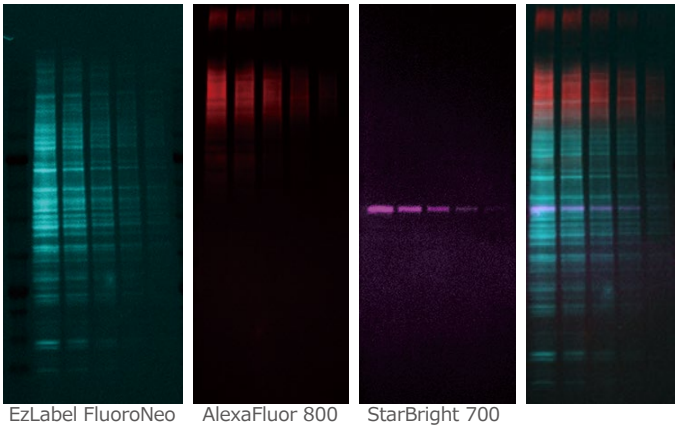
Fluorescence imaging requires a light source suitable for exciting the fluorescent material and a filter for capturing the fluorescence with low background noise.

Excitation light source and fluorescence detection target

	WSE-5610 CyanoViewⅡ	BlueRed Blue	BlueRed Red	GreenNIR Green	GreenNIR NIR
Excitation (nm)	490-520	460-480	605-640	515-540	715-745
WSE-7010 EzLabelFluoroNeo	◎	◎			
WSE-7130 EzFluoroStainDNA	◎	◎			
WSE-7135 EzPreStain DNA&RNA	◎	◎			
EtBr	◎	△		○	
GFP		◎			
RFP/DsRed	◎			◎	
Cy2/Alexa488		◎			
Cy3/Alexa555				◎	
Cy5/Alexa647			◎		
Cy7/Alexa800					◎
Pro-Q Diamond	◎			◎	

Sample Image

This image was created by detecting all proteins using EzLabel FluoroNeo, detecting CA19-9 using AlexaFluor 800, and detecting SMAD2 using StarBright 700, and then merging (compositing) the images.



Experimental Conditions
Gel : UH-R420
Sample : EzLabel FluoroNeo-Labeled、Colo205 cell culture supernatant derived from colorectal cancer (30, 15, 7.5, 3.7, 1.8μg/lane)
Transfer : EzFastBlot, 24V, 15 min
Blocking : EzBlockCAS, 1 hour
CA19-9
1st antibody : Anti-human CA19-9 mouse monoclonal antibody
2nd antibody : StarBright 700-labeled anti-mouse Ig antibody
SMAD2
1st antibody : Anti-human SMAD2 rabbit monoclonal antibody
2nd antibody : Alexa 800-labeled anti-rabbit Ig antibody

Target	Fluorescent dye	Excitation	Filter	Gain	Expo time
Total Protein	EzLabel FluoroNeo	Blue LED	BPF530	HQ	5 s
CA19-9	StarBright 700	Blue LED	BPF690	HQ	2 s
SMAD2	Alexa800	NIR	LPF830	HQ	10 s

We compared chemiluminescence detection and fluorescence detection using Western blotting. Chemiluminescence detection offers superior detection limits. An advantage of fluorescence detection is that it allows for multiplex staining if the excitation light and fluorescence wavelengths are different. The LuminoGraph II EM is compatible with a variety of detection methods.

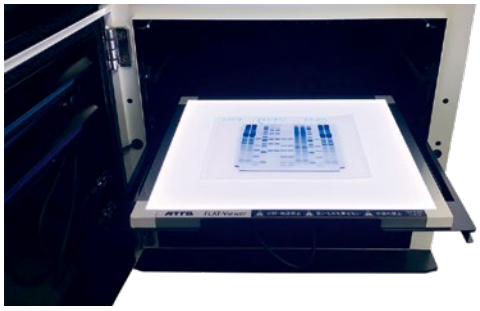
		Excitation	Filter	Gain	Expo time
EzWestLumi plus		—	—	STD	1 min
EzWestLumiOne		—	—	STD	1 min
Alexafluor 800		NIR	LPF810	HQ	10 s
IRDye 800		NIR	LPF810	HQ	10 s
AlexaFluor 647		Red LED	LPF690	HQ	30 s
StarBright 700		Blue LED	BPF690	HQ	10 s

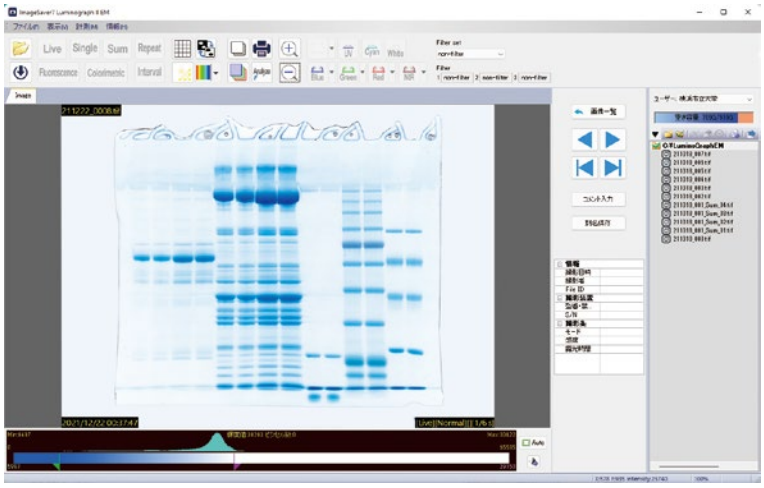
Experimental Conditions
Gel : UH-R420 (u-PAGEL H)
Sample : Human transferrin (1:2 dilution series starting from 10 ng/lane)
Transfer : EzFastBlot, 24V, 15 min
Blocing : EzBlockCAS, 1 hour
1st antibody : Anti-human transferrin rabbit polyclonal antibody (General)
2nd antibody : HRP-labeled anti-rabbit Ig antibody
(**EzWestLumi plus/EzWestLumiOne**)
2nd antibody : **AlexaFluor 800** labeled anti-rabbit Ig antibody
2nd antibody : **IRDye 800** labeled anti-rabbit Ig antibody
2nd antibody : **AlexaFluoro 647** labeled anti-rabbit Ig antibody
2nd antibody : **StarBright 700** labeled anti-rabbit Ig antibody

Colorimetric imaging（Option）

The LuminoGraph II EM can capture images of CBB-stained gels and other samples using the optional white transmitted light source “Flat Viewer” and the “ND-0.1” imaging filter. Images saved in 16-bit TIFF format are suitable for quantitative analysis.

Light source : Flat Viewer
Filter : ND-0.1
Supports pseudo-color display



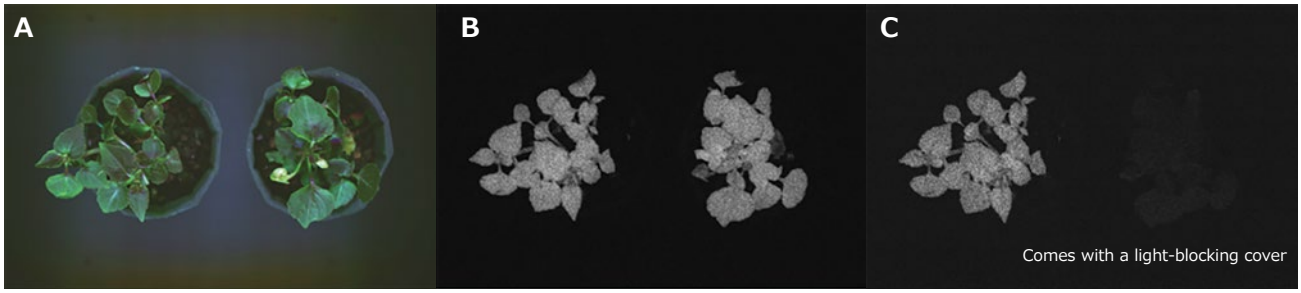


ImageSaver7 EM: CBB Gel Display Image
Since the LuminoGraph II EM is a monochrome camera, the captured images are monochrome. The image above shows the view when the pseudo-color “CBB” is applied in ImageSaver7. You can also save the image as a color image by saving it under a different name.

Plant Fluorescence Imaging（Option）

Delayed fluorescence imaging of plant specimens

Using the LuminoGraph II EM equipped with the optional “Blue-Red LED Set” and “Green-NIR LED Set,” we captured images of delayed fluorescence in plants and chlorophyll fluorescence. Since delayed fluorescence decays rapidly after light exposure, high-sensitivity imaging is required. The LuminoGraph II EM is capable of capturing delayed fluorescence as well as fluorescence from plant components such as chlorophyll. (We plan to add features such as light exposure cycle settings for time-lapse imaging of plant samples.)



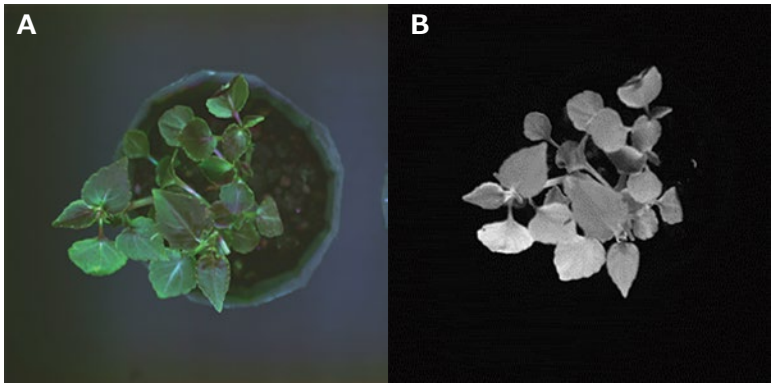
A: Bright-field imaging
We illuminated the sample with blue, green, and red light, captured the images in real time without filters, and then combined them into an RGB composite image using the image analysis software CS Analyzer 4.
Gain : HQ　Binning:1x1
Exposure time : 20msec

B: Delayed fluorescence imaging
The blue LED and red LED (100%) were turned on simultaneously, and after 3 minutes of illumination, delayed fluorescence images were captured without a filter.
Gain : STD　Binning:2x2
Exposure time : 1 min

C: Delayed fluorescence imaging (comparison with and without light source illumination)
A light-shielding cover was placed over the right pot, and the Blue LED and Red LED (100%) were turned on simultaneously. After 3 minutes of illumination, the light-shielding cover was removed, and delayed fluorescence images were captured without a filter.
Gain : STD　Binning:2x2
Exposure time : 1 min
(The delayed fluorescence intensity has decreased slightly due to the time lag between removing the cover and taking the photograph.)

Chlorophyll fluorescence imaging of plant tissues

Using the LuminoGraph II EM equipped with the optional “BlueRed LED Set,” we performed chlorophyll fluorescence imaging of plants.



A: Bright-field imaging (left)
Images were captured using blue, green, and red light without filters (20 ms) and saved; these were then combined into an RGB composite image using the image analysis software CS Analyzer
4.　Gain : HQ　Binning:1x1
Exposure time : 20msec

B: Chlorophyll fluorescence imaging (right)
Light source : Epi Blue（470nm）　100%
Filter : LPF690 filter
Gain : HQ　Binning:1x1
Exposure time : 1 sec

Correspondence Between Systems and Sample Images

Code	Product	Chemilumi	Fluorescence western	Fluorescence gel	Staining gel
2006270	WSE-6270 LuminoGraph Ⅱ EM	●	Option	Option	Option
2006271	WSE-6270-CS LuminoGraph Ⅱ EM	●	Option	Option	Option
2006272	WSE-6270-CSP LuminoGraph Ⅱ EM	●	Option	Option	Option

Chemiluminescnece	This is an experimental method used in Western blotting, Southern blotting, Northern blotting, and similar techniques, in which bands are detected by adding a luminescent reagent after enzyme labeling. It does not require the use of light sources or filters for imaging.Keywords: HRP, ALP, ECL, luminescence, chemiluminescence
Fluorescence western	This is an experimental method that uses fluorescently labeled secondary antibodies in Western blotting and detects bands using excitation light sources such as lasers or LEDs. It requires an epi-illuminator and a filter for imaging. keywords: CyDye, StarBright, Alexa Fluor, NIR, LED, laser, filter
Fluorescence gel	This experimental method involves staining proteins or nucleic acids separated in a gel after electrophoresis using fluorescent staining reagents and detecting the bands using an excitation light source. A transmitted excitation light source (an incident light source can also be used) and a filter for imaging are required. keywords: ethidium bromide, SYBR, SYPRO, LED, UV illuminator, filter
Staining gel	This is an experimental method primarily used to visualize proteins and nucleic acids after polyacrylamide gel electrophoresis by staining them with dyes. A white transmitted light source and a photographic filter are required for imaging. Keywords: CBB staining, silver staining, white transmitted light source, neutral density filter

Option

Code		
2006276	Cyan II Fluorescence Imaging Kit	This is a set consisting of the WSE-5610 CyanoView II, YA-3, an orange cover for gel cutting, and a Gel Tray S. (If the gel background is high, please use the optional R-60 filter.)
2006279	White Light Source Imaging Kit	This is a set consisting of a flatbed viewer, a light source tray (for WSE-6270), and an ND-0.1 filter.
2008121	BlueRed LED set	This is a set of BlueRed LED, BPF530, BPF690, and filter holder. (Please use the optional BPF510 filter for GFP imaging.)
2008126	GreenNIR LED set	This is a set consisting of a GreenNIR LED, BPF600, LPF830, and filter holder.

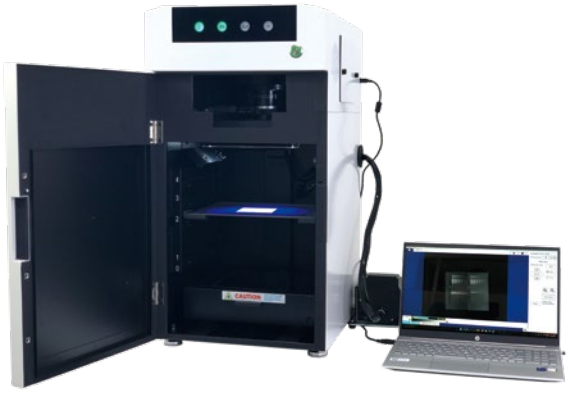
Code	Product	Quantity
2006270	WSE-6270 LuminoGraph Ⅱ EM	1
2006271	WSE-6270-CS LuminoGraph Ⅱ EM	1
2006272	WSE-6270-CSP LuminoGraph Ⅱ EM	1
2006276	Cyan II Fluorescence Imaging kit (WSE-6170/6175/6270)	1
2006279	White Light Source Imaging kit (WSE-6170/6175/6270)	1
2008121	BlueRed LED set	1
2008126	GreenNIR LED set	1
2006280	UV Fluorescence Imaging kit (WSE-6270)	1
2006290	Installation Qualification (WSE-6270)	1
2006291	Operational Qualification (WSE-6270)	1
2006277	Filter Holder (WSE-6270)	1
2006278	Light Source Tray(WSE-6170/6175/6270)	1
2195939	Gel Tray (WSE-6175/6200/6270)	1
2195931	Gel Tray S (194 x 164mm)	1
2140202	UP-X898 Hybrid Graphic Printer	1
2140913	UPP-110HG Printer Paper	Set of 10

WSE-6370 LuminoGraph Ⅲ Lite

Features a high-sensitivity 6-megapixel cooled CCD! Chemiluminescence Imaging System

- Features the world's highest-performance "F0.8" high-sensitivity prime lens
- Equipped with a high-resolution, high-sensitivity 6-megapixel cooled CCD camera
- Equipped with a UV irradiation unit and photography filters
- Equipped with a white transmitted light source
- Maximum imaging size: 260 x 200 mm; minimum: 100 x 75 mm
- High sensitivity and wide dynamic range with the "AutoExposure" function

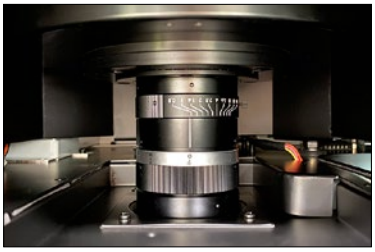
※The PC is sold separately.

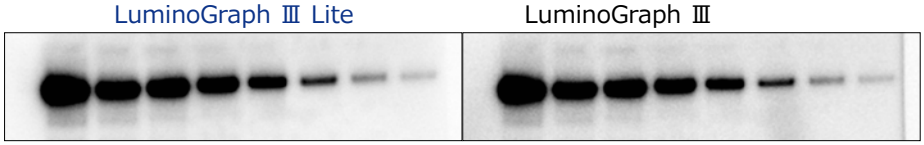


	WSE-6370 LuminoGraph III Lite	WSE-6370A-CP LuminoGraph III Lite (with RGB Light source unit)
Camera	Cooled CCD camera　Resolution 2750 x 2200 (6 M pixels)	
Grayscale	16 bit（65,536）	
Lens	F0.8 Manual focus	
Binning	2 x 2 、4 x 4 、6 x 6	
Filter	Electric control, 5 position BPF595 filter / ND filter	Electric control, 5 position BPF595 filter / ND filter / BPF535 / BPF680
Imaging size	4 position　10 x 7.5 cm / 14 x 10 cm / 18 x 13 cm / 26 x 20 cm	
Light source	Epi White Light Trans White illuminator Trans UV illuminator（312 nm）	Epi White Light Trans White illuminator Trans UV illuminator（312 nm） Epi Blue : 466nm Epi Green : 525nm Epi Red : 623nm
Control	Windows PC (Windows 11/64 bit)　USB connection Control software（LuminoGraph III Lite）	
Dimensions / Weight	39 (W) x 46 (D) x 75 (H) cm・50.3 kg	39 (W) x 46 (D) x 75 (H) cm・50.3 kg RGB unit 14.5(W)x20(D)x14(H)cm・2.7kg
Power	100 - 240 VAC, 50 / 60 Hz, 200 W (Max)	100 - 240 VAC, 50 / 60 Hz, 200 W (Max) RGB unit 100 - 240 VAC, 50 / 60 Hz, 60 W (Max)

Equipped with an ultra-high-sensitivity cooled CCD camera

This is the high-end model of the ATTO Chemilumi Imager, featuring a 6-megapixel CCD sensor and an F0.8 high-sensitivity lens.

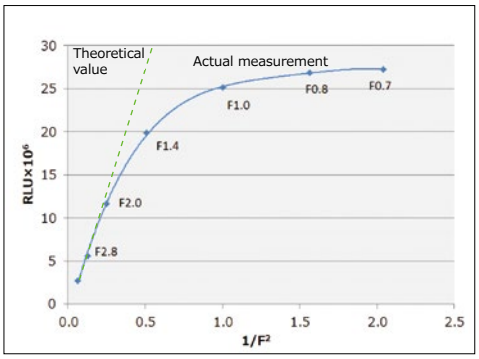




Sample : HeLa cells, 2-fold dilution series starting at 30 μg/lane
1st antibody : Anti-SMAD2 antibody
2nd antibody : HRP-labeled anti-rabbit IgG antibody
Detection reagent : EzWestLumi plus （Luminescence Detection Reagent for ATTO HRP）

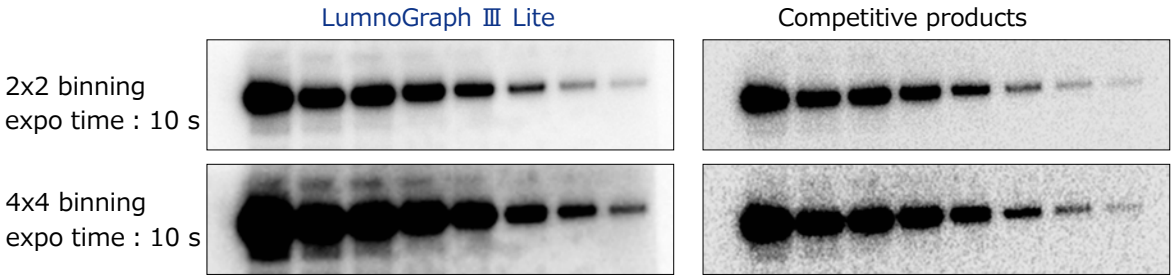
An F0.8 lens suitable for high-sensitivity imaging

The light-gathering efficiency of a lens increases in inverse proportion to the square of its f-number; in other words, the lower the f-number, the greater the efficiency. However, this is strictly a theoretical concept; in practice, as shown in the figure on the right, the deviation from the theoretical value becomes more pronounced as the f-number decreases. This is due to the influence of the microlenses on the sensor surface. The LuminoGraph III Lite features a high-sensitivity f/0.8 prime lens that achieves maximum brightness with virtually no distortion.



Improved image quality with high resolution and low noise

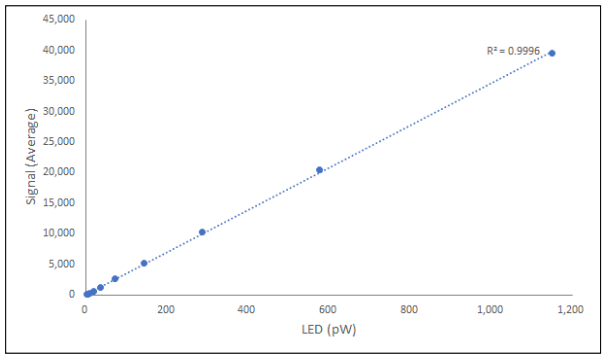
Even during short exposure times, noise is significantly reduced, resulting in high-sensitivity, high-quality images compared to mid-range imaging systems in the same price range. Even when increasing the binning setting to detect faint samples, bands can still be clearly identified.



Sample : HeLa cells, 2-fold dilution series starting at 30 µg/lane
1st antibody : Anti-SMAD2 antibody
2nd antibody : HRP-labeled anti-rabbit IgG antibody
検出試薬 : EzWestLumi plus （ATTO HRP用発光検出試薬）

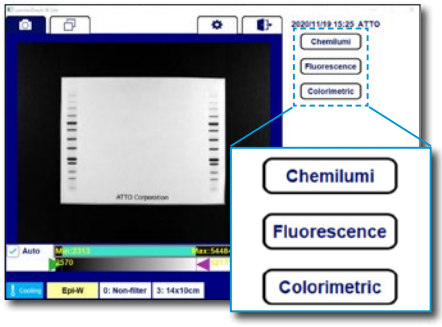
Excellent quantitation and wide dynamic range

For quantitative Western blotting, it is essential to detect signals that are proportional to protein concentration. Additionally, a wide dynamic range is required to cover signals ranging from very weak to very strong.
The graph on the right shows signal measurements taken using a standard LED light source (ATTOWSL-1200C, KohshiFundam) designed for low-light detection instruments. Linearity with $R^2 \geq 0.999$ is confirmed across a wide range.
Because the LuminoGraph III Lite excels in linearity across a wide dynamic range, it can simultaneously quantify samples even when there are significant differences in protein concentration.



Easy shooting with intuitive menu selection

Select application

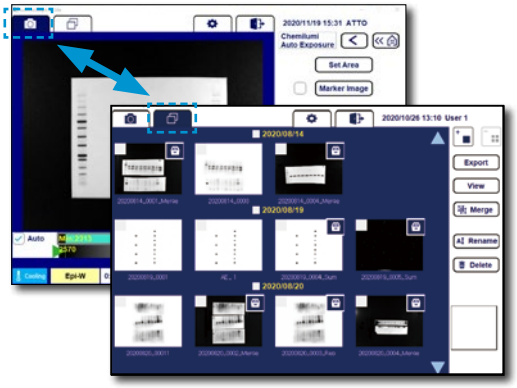


There are menus for each application, so you can take photos with ease.

AutoExposure setting

We support automated capture tailored to each application.

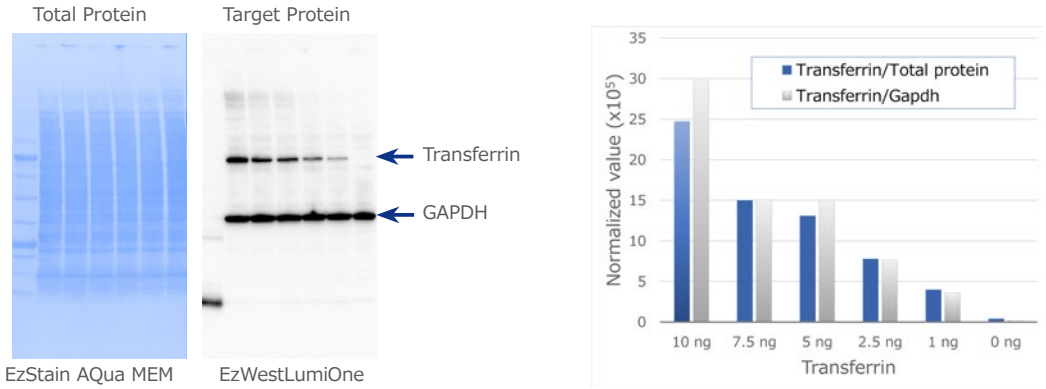
Screen transition



Simply click the icon tab to switch between the camera view and the image gallery.

Sample Data Images

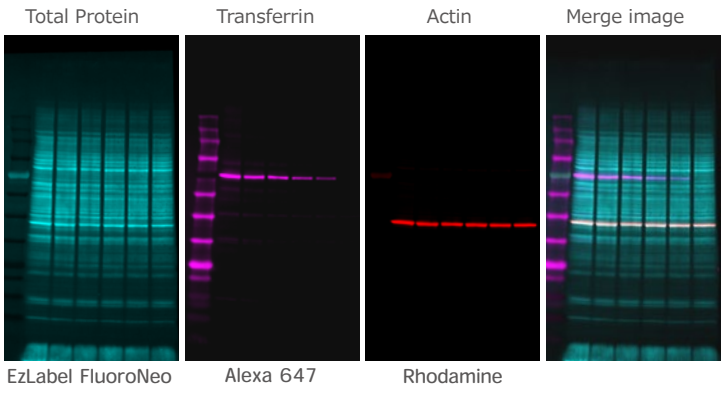
● Luminescence detection by Western blotting and normalization by total protein



Samples of HEK293 cell extracts containing 0–10 ng of transferrin per lane were separated by electrophoresis on a u-PAGEL H gel, and total proteins on the PVDF membrane transferred using EzFastBlot were detected with EzStain AQua MEM. Subsequently, Western blotting was performed using anti-GAPDH and anti-transferrin antibodies, and the results were detected by chemiluminescence using EzWestLumiOne. The figure above shows images of total protein (brightfield) and the target protein (luminescence) captured using the LuminoGraph III Lite. The graph presents the results of analyzing the image data using CSAnalyzer 4, with the amount of transferrin normalized based on the signal values of total protein and the housekeeping protein (GAPDH). Regardless of the normalization method used, the results corresponded to the amount of transferrin added. As shown, the LuminoGraph III Lite can capture Western blotting results involving faint luminescence detection as high-resolution images with high sensitivity and a high signal-to-noise ratio.

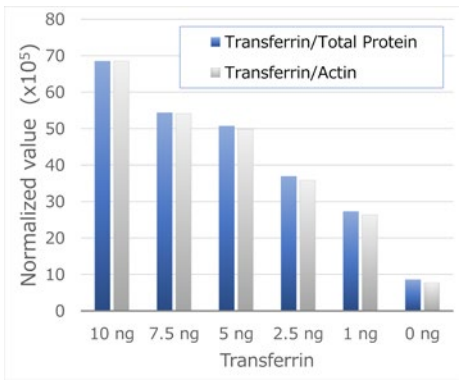
Experimental Conditions
Gel : UH-T420
Sample : Cell extract with added transferrin
HEK293 cell extract (20 µg/lane)
Human Transferrin
(10, 7.5, 5.0, 2.5, 1.0, 0 ng/lane)
Transfer : EzFastBlot, 24V, 15 min
Bloking : EzBlockCAS, 30min
Transferrin
1st antibody : Anti-human transferrin rabbit polyclonal antibody
GAPDH
1st antibody : Anti-human GAPDH rabbit polyclonal antibody
2nd antibody : HRP-labeled anti-rabbit Ig antibody
Detection : EzWestLumiOne
Imager : LuminoGraph Ⅲ Lite

● Detection by fluorescent Western blotting and normalization against total protein



Experimental Conditions
Gel : UH-T420
Sample : Cell extract with added transferrin
EzLabel FluoroNeo-labeled HeLa cell extract (20 µg/lane)
Human Transferrin
(10, 7.5, 5.0, 2.5, 1.0, 0 ng/Lane)
Transfer : EzFastBlot, 24V, 15min
Blocking : EzBlockCAS, 30min
Transferrin
1st antibody : Anti-human transferrin rabbit polyclonal antibody
2nd antibody : Alexa 647-labeled anti-rabbit Ig antibody
Actin
antibody : Rhodamine-labeled anti-human actin antibody
Imager : LuminoGraph Ⅲ Lite

Target	Fluorescent dye	Emission	Filter	Expo time
Total Protein	EzLabel FluoroNeo	Blue LED	BPF535	0.5 s
Transferrin	Alexa 647	Red LED	BPF680	0.5 s
Actin	Rhodamine	Green LED	BPF595	0.5 s



The results shown here were obtained by electrophoresis on a u-PAGEL H gel of samples containing 0–10 ng of transferrin per lane added to HeLa cell extracts, followed by Western blotting and imaging with LuminoGraph III Lite. The graph presents the results of analyzing the image data using CSAnalyzer 4, with transferrin levels normalized based on the signal values of total protein and the housekeeping protein (actin). Regardless of the normalization method used, the results corresponded to the amount of transferrin added. As demonstrated, the LuminoGraph III Lite can capture high-resolution images of fluorescent Western blot results with high sensitivity and a high signal-to-noise ratio.

RGB Light Source Unit

The RGB light source featured in the LG Ⅲ Lite utilizes a high-brightness, high-power white LED light source that employs energy-efficient phosphors capable of highly efficient wavelength conversion. This LED light source emits visible light (420–780 nm), with ultraviolet and infrared wavelengths excluded. Combined with a bandpass filter of the appropriate wavelength range, this white LED allows for the irradiation of excitation light while maintaining high brightness. Furthermore, thanks to its energy-saving design, it has an exceptionally long lifespan of 50,000 hours, ensuring reliable and worry-free use.

System Configuration

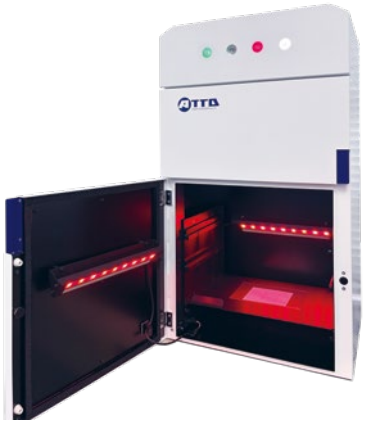
model	**WSE-6370**	**WSE-6370CS**	**WSE-6370CSP**
6-megapixel cooled CCD camera	○	○	○
Light-shielding cabinet	○	○	○
Control software	○	○	○
Windows PC system	OPTION	OPTION	○
CS Analyzer 4 software	OPTION	○	○
Trans UV illuminator	○	○	○
Trans white illuminator	○	○	○
RGB light source unit	OPTION	OPTION	OPTION
Optical filter (Standard)	ND/BPF595	ND/BPF595	ND/BPF595
Optical filter (Option)	BPF535/BPF680	BPF535/BPF680	BPF535/BPF680

Code	Product	Quantity
2006370	WSE-6370 LuminoGraph Ⅲ Lite	1 set
2006371	WSE-6370-CS LuminoGraph Ⅲ Lite LuminoGraph Ⅲ Lite/CS Analyzer 4	1 set
2006372	WSE-6370-CSP LuminoGraph Ⅲ Lite LuminoGraph Ⅲ Lite/CS Analyzer 4/Windows PC system	1 set
2006377	WSE-6370 RGB Light source unit RGB main unit/Light source filter/Optical filter	1 set
2122295	Windows PC system	1
2110030	CS Analyzer 4 for Windows	1
2140202	UP-X898MD Hybrid Graphic Printer	1
3700006	WSL-1200C Kohshi Fundam (for CCD camera)	1

WSE-6175 LuminoGraph I CMOS

Featuring a new-generation cooled CMOS camera! Chemiluminescence & Fluorescence Imaging System

- **Equipped with a new-generation cooled CMOS camera: High-resolution 4-megapixel**
- **Compatible with epi-LED (Blue/Red) (optional)**
- **Chemiluminescence imaging / Fluorescence imaging**
- **GAIN mechanism that increases sensitivity without changing resolution: HQ/STD/High/Ultra**
- **Capable of normalizing all proteins**
- **Wide dynamic range enables acquisition of highly quantitative data**

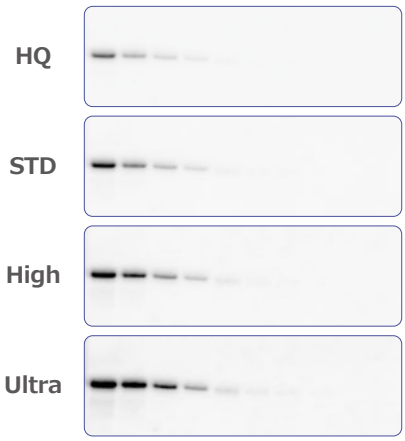


Chemiluminescnece Mode and Shooting Methods
<Sensitivity settings (HQ/STD/High/Ultra) are available in all modes!>

Mode		Merge	
Single	AutoExposure AutoExposure Select Area Custom Exposure time setting	○ ○ ○	AutoExposure automatically sets an exposure time that prevents the brightest areas of the entire image or a selected region from becoming overexposed.
Sum	AutoSum (Prevention of saturation) Sum (Number of times) Sum (Multi Time)	○ ○ ○	Select any exposure time and shoot while accumulating the exposure. You can also set a custom number of shots or take multiple exposures with different exposure times.
Repeat	Repeat	○	The camera will take multiple consecutive shots at the specified exposure time.
Interval	Interval、Expo time、Light source、etc.	–	The camera will take photos at regular intervals based on the specified settings.

Differences in Detection Sensitivity Based on Sensitivity Settings

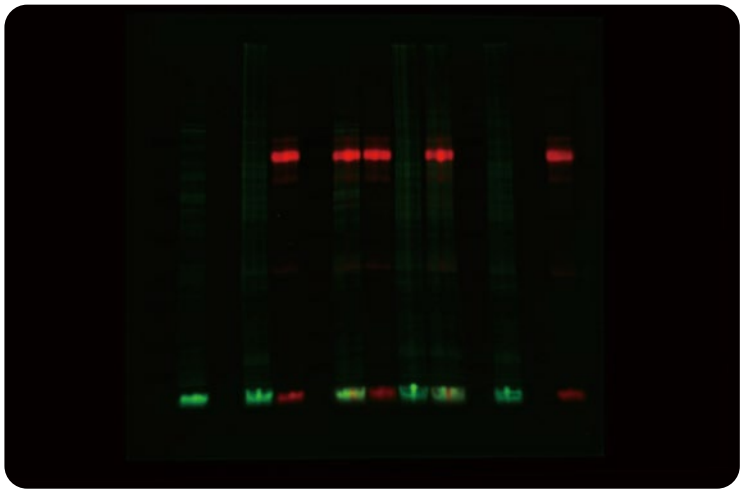
We prepared the same sample for sensitivity comparison and compared the detection sensitivity at each set sensitivity level.



Condition	
Gel	: m-PAGEL M-520L
Sample	: Human transferrin (1:2 dilution series starting from 1 ng/lane, from left to right)
Transfer	: WSE-4058 QBlot kit W c.v. 24V 15min
Blocking	: AE-1477 EzBlockCAS, 30min
1st Antibody	: Anti-human transferrin rabbit polyclonal antibody
2nd Antibody	: HRP-labeled anti-rabbit Ig antibody
Detection Reagent	: WSE-7120 EzWestLumi plus
Detector	: WSE-6175 LuminoGraph I CMOS
Expo time	: 1 min

Fluorescence imaging using blue and red LED light sources (optional)

WSE-6175F-CP / WSE-6175FW-CP / WSE-6175A-CP



Using blue and red LEDs, we excited Cy2- and Cy5-labeled proteins, imaged them separately, and then combined the images using control software to map Cy2 to green and Cy5 to red.

「BlueRed LED」

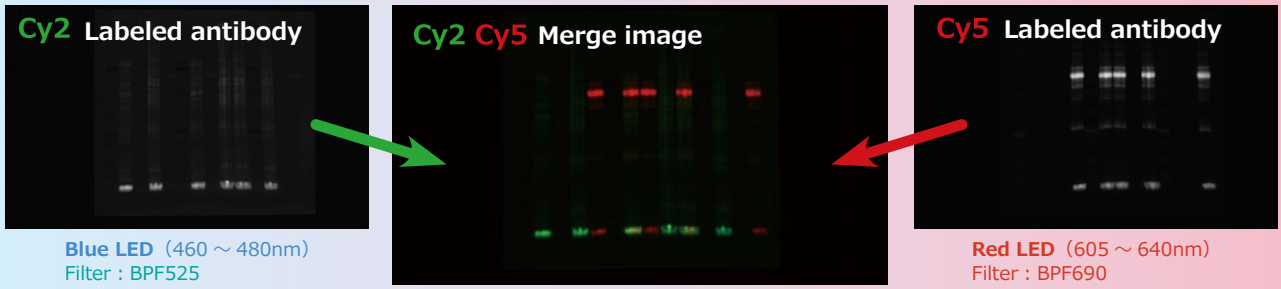
The LuminoGraph I CMOS has been upgraded to model WSE-6175 and now offers the option to install an epi-LED light source. In addition to conventional fluorescence imaging using a cyan LED, it now supports fluorescence Western blotting using blue and red LEDs, as well as fluorescence detection on polyacrylamide gels. The central wavelengths of each light source are as follows:

Blue: 460–480 nm
Red: 605–640 nm

This system can be used to detect fluorescent substances excited at the above wavelengths.

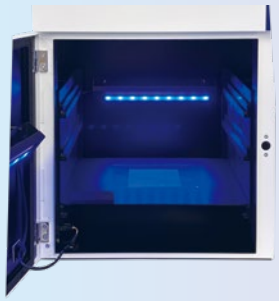
※Note: An incident LED light source cannot be added to the WSE-6170.

<Fluorescent Western blotting using blue and red LEDs>



Blue LED (460 ~ 480nm)
Filter : BPF525

Red LED (605 ~ 640nm)
Filter : BPF690



Using the "Fluorescence Mode" of the ImageSaver7 CMOS, we captured separate images of fluorescent Western blot samples labeled with Cy2-conjugated and Cy5-conjugated antibodies, targeting Cy2 and Cy5, respectively.
The image above is a pseudo-color composite created by the ImageSaver7 CMOS from these captured images.

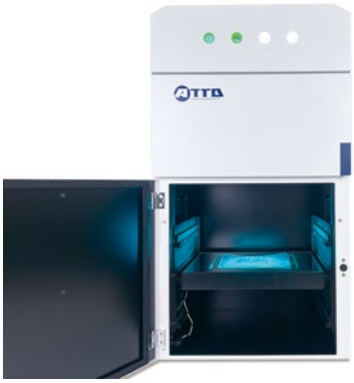
Contents of the Blue/Red LED Set

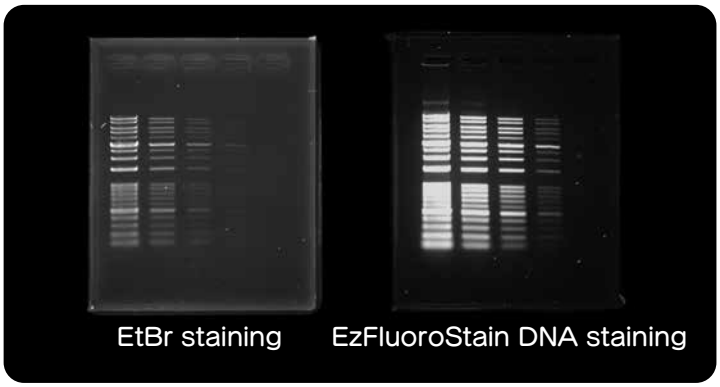
Code	Product	
2008131	BlueRed LED set（WSE-6175）	
2008130	BlueRed LED（WSE-6175 用）: 1	Light source
2008067	BPF525 Filter 50mm Square : 1	Optical filter
2008065	BPF690 Filter 50mm Square : 1	Optical filter
2006177	Filter holder (WSE-6170/6175) : 1	Filter holder

※When using a BlueRed LED for fluorescence excitation of polyacrylamide gels, please use the "Gel Tray (WSE-6175/6200/6270)" . This gel tray is included with the WSE-6175F-CP, 6175FW-CP, and 6175A-CP models.

Fluorescence imaging using a transmissive cyan LED light source (optional)

WSE-6175Cy-CP / WSE-6175CyW-CP / WSE-6175A-CP





You can separate DNA using agarose gel electrophoresis or polyacrylamide gel electrophoresis, and then photograph and save the gels after staining them with ethidium bromide (EtBr) or EtBr alternative stains (such as ATTO WSE-7130 EzFluoroStain DNA).
CyanoView II is a fluorescence excitation light source equipped with a cyan LED with a peak wavelength of 505 nm. It enables EtBr detection without the use of a UV irradiation device, and since it causes virtually no DNA damage, it results in a high recovery rate during gel excision.When combined with the highly sensitive LuminoGraph I CMOS, it enables highly sensitive detection and the acquisition of clear images.

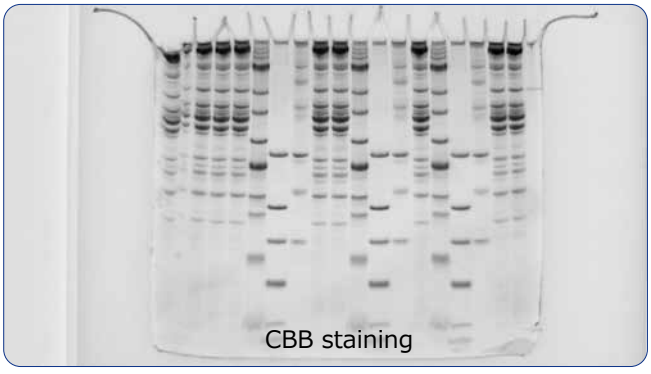
Contents of the Cyan II Fluorescence Imaging Kit

Code	Product	
2006276	Cyan Ⅱ Fluorescence Imaging kit（WSE-6170/6175/6270）	
2008152	WSE-5610 CyanoView II	Light source
2130414	YA-3 Filter 50mm Square : 1	Optical filter
2195931	Gel tray S（194 × 164mm）: 1	Gel tray
2006122	Orange cover for gel cutting : 1	Orange cover

YA-3 with Filter Holder

Imaging of dye-stained gels using a white light source (optional)

WSE-6175CyW-CP / WSE-6175FW-CP / WSE-6175A-CP



CBB staining of proteins is a simple method with a relatively wide dynamic range, and imaging using a transmitted white light source yields highly quantitative data.
The FlatViewer provides excellent illumination uniformity across the imaging area, and when combined with the flat-field correction of the LuminoGraph I CMOS, it enables the capture of CBB-stained gels as highly quantitative 16-bit TIFF data.

White Light Source Kit Components

Code	Product	
2006279	White Light Source Imaging Kit Components（WSE-6170/6175/6270）	
2196160	Flat-Viewer : 1	Light source
2130446	ND-0.1 Filter 50mm square : 1	Optical filter
2006278	Light Source Tray : 1	

ND-0.1 with Filter Holder

System Configuration

Model	WSE-6175	WSE-6175CS	WSE-6175CSP
LuminoGraph I CMOS with cooled CMOS came	○	○	○
ImageSaver7 CMOS（Control software）	○	○	○
CS Analyzer 4	option	○	○
Windows PC	option	option	○
WSE-5610 CyanoView II（Light source）	option	option	option
Flat Viewer+Light source toray	option	option	option
BlueRed LED（WSE-6175）	option	option	option
Optical filter 50mm square (YA-3/ND-0.1/BPF525/BPF690)	option	option	option
Filter Holder	1	1	1
Gel Tray	option	option	option
Orange cover for gel cutting	option	option	option

Specification

	WSE-6175 LuminoGraph I CMOS
Camera	Cooled CMOS Camera　Iamge size　2688 x 1512
Grayscale	16 bit（65,536）
Lens	F0.95　Single-focus lens
Sensitivity Settings	Gain : HQ / STD / High / Ultra　Binning : 1x1/2x2/4x4
Optifal filter	50mm square with filter holder
Imaging area	min 108 × 60mm - Max 196 × 110mm（4 position）
Inner light	Epi White LED（Dimmable） Turns on and off in sync with the door opening and closing
Control soft	ImageSaver7 CMOS　OS Windows 11（64bit）
Connection terminal	Internal: 12V DC × 1 (for optional light source) USB 3.0 Micro-B × 1 (for PC connection)
Temperature conditions	For indoor use only. 20° C to 30° C (no condensation)
Dimension	363(W) × 307 (D) × 660mm(H)
Weight	18.0kg（Main unit）
Power	AC100-240 V　50/60Hz　Max 150 W

Option

Code	Product	Quantity
2122295	Windows PC system	1
2110030	CS Analyzer4 for Windows	1
2006279	White Light Source Imaging Kit（WSE-6170/6175/6270）	1
2006276	CyanII Fluorescence Imaging Kit（WSE-6170/6175/6270）	1
2008131	BlueRed LED set（WSE-6175）	1
2195939	Gel Tray（WSE-6175/6200/6270）	1
2140202	UP-X898MD Hybrid Graphic Printer	1
2140913	UPP-110HG Printer paper	Set of 10
3700006	WSL-1200C Kohshi Fundam（for CCD camra）	1
2006177	Filter holder（WSE-6170/6175）	1
2130452	R-60 Filter 50mm Square（600nm Long pass filter）	1
2008062	BPF510 Filter 50mm Square（510nm Band pass filter）	1
2008067	BPF525 Filter 50mm Square（525nm Band pass filter）	1
2008069	BPF600 Filter 50mm Square（600nm Band pass filter）	1
2008065	BPF690 Filter 50mm Square（690nm Band pass filter）	1
2008063	LPF690 Filter 50mm　(690nm Long pass filter)	1
2195931	Gel Tray S（194×164mm）	1

Installation Qualification/Operational Qualification

LuminoGraph series

Target Systems

- **WSE-6270 LuminoGraph II EM**
- **WSE-6175 LuminoGraph I CMOS**
- **WSE-6370 LuminoGraph III Lite**

Main Items

- **System Functionality Verification**
- **Luminous Intensity Linearity Test: Using the "KohshiFundam" reference light source**
- **Exposure time linearity test: Using the "KohshiFundam" reference light source**
- **Absolute sensitivity test: Using the "KohshiFundam" reference light source**
- **Repeatability test: Using the "KohshiFundam" reference light source**
- **Relative sensitivity test: Using the "KohshiFundam" reference light source**
- **Computer system operation verification**

Installation Qualification

We conduct functional tests and various tests using a standard light source before shipping the product. We compile the test results and prepare a report.

Operational Qualification

Based on the installation qualification data, we verify operation at the installation site and conduct various tests using a reference light source.

We confirm that the data at the time of shipment and at the time of installation fall within the specified limits.

Reference light source: WSL-1200C Photon Fandom (for CCD cameras)

By managing the imaging data of the purchased device using the reference light source, it is possible to perform operational testing.

Code	Product	Quantity
2006290	Installation Qualification (WSE-6270)	1
2006291	Operational Qualification (WSE-6270)	1
2006192	Installation Qualification (WSE-6175)	1
2006193	Operational Qualification (WSE-6175)	1
2006390	Installation Qualification (WSE-6370)	1
2006391	Operational Qualification (WSE-6370)	1
3700006	WSL-1200C Kohshi Fundam (for CCD camera)	1

CS Analyzer4/IS7 LG II EM Sequrity Ver.UP
CS Analyzer4/IS7 LG I CMOS Sequrity Ver.UP

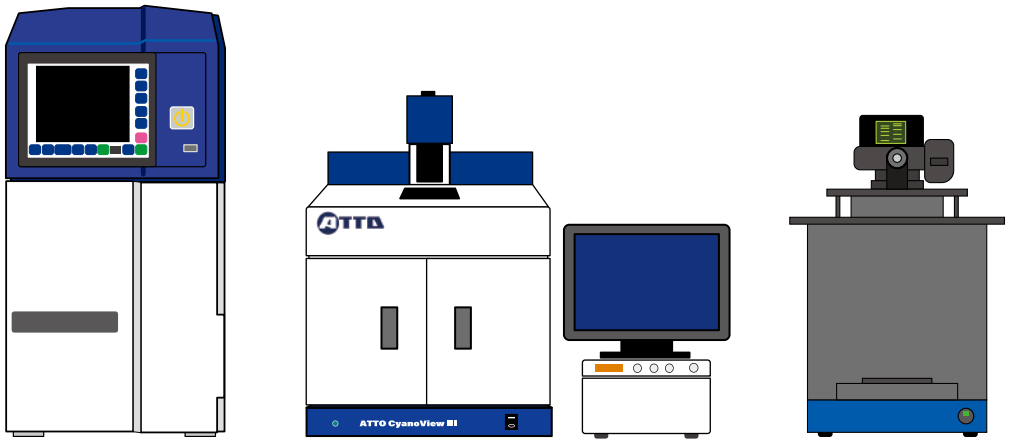
Key Features

- **User management and restrictions on configuration changes via administrator privileges**
- **Security settings: Login password configuration, automatic logoff feature**
- **Storage location restrictions: Restrict data storage locations (overwriting not allowed)**
- **Backup settings: Back up configuration files, image files, and analysis data files when the software is closed**
- **Operation history logging (audit trail)**
- **Restrictions on file operations on the PC**

Security software restricts system access to authorized users and limits the deletion or transfer of data. It also records the software's operation history (logs).

Code	Product	Quantity
2110033	CS Analyzer4/IS7 LG Ⅱ EM Security Ver.UP	1
2110034	CS Analyzer4/IS7 LG I CMOS Security Ver.UP	1

Gel Documentation System series



Page	Category	Product
115	High-sesolution CMOS Gel Documentation System	WSE-5300 Printgraph CMOS Ⅰ
119	Color CMO SGel Documentation System	WSE-5400 Printgraph Classic
123	Digital camera Gel Documentation System	WSE-5700 Digigraph
125	Gel Documentation system Equipment supplies	Gel tray / Printer paper / UV lamp

WSE-5300 Printgraph CMOS I

Hihg-resolution 6-megapixcel CMOScamera Gel Documentation System

About Printgraph CMOS I

A product line with over 4,000 units installed
The de facto standard

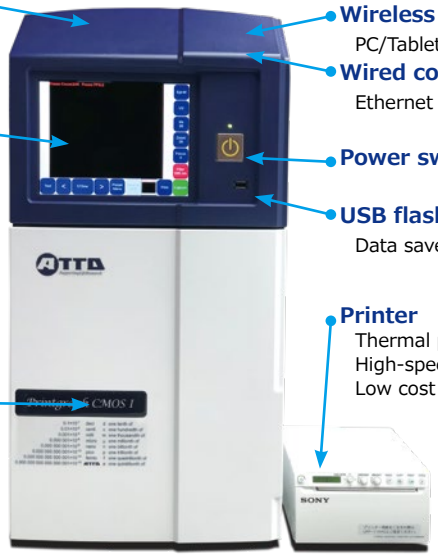
The “WSE-5300 Printgraph CMOS I” is a Gel Documentation System equipped with a 6-megapixel monochrome CMOS camera and featuring an electrostatic touch panel, designed with a focus on ease of use. It facilitates fluorescence imaging of DNA gels stained with ethidium bromide (EtBr) under UV light, as well as imaging of CBB-stained SDS-PAGE gel patterns using a white transmitted light source.

The newly developed LED light source unit, “CyanRed Epi,” is equipped with switchable cyan (blue-green) and red LEDs. The cyan LED combines the characteristics of both blue and green LEDs, making it compatible with fluorescent substances excited by both blue and green visible light. It enables high-sensitivity detection of EtBr-stained gels, for which sufficient sensitivity could not be achieved with a Blue LED.
Imaging data can be saved to internal memory or a USB memory stick. By connecting the UP-X898MD hybrid graphic printer, images can be printed out immediately. The date can also be printed.

Camera
6-Megapixcel
6x Zoom lens
Image size 26x18cm

Touch panel
Exposure time
Light source
Filter select
Data save
Print out
Set up

Cabinet
UV illuminator
CyanRed Epi
White illuminator
Innner White LED
Gel cutting



Wireless conection
PC/Tablet

Wired conection
Ethernet

Power switch

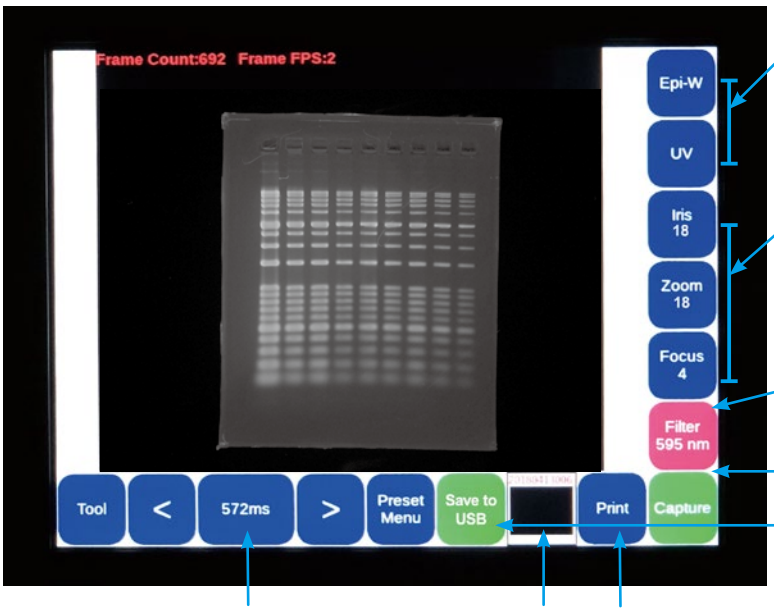
USB flash drive
Data save

Printer
Thermal printing
High-speed printing
Low cost

WSE-5300A Printgraph CMOS I

Touch panel

The “WSE-5300 Printgraph CMOS I” allows you to perform various operations via its touch panel. High-resolution gel images can be captured with simple operations. Any changes made are immediately reflected in the captured image.



Light source control
Epi-W : Turning the inner light on and off
UV : Turning the UV illuminator on and off
In addition, you can turn each connected light source on and off or change its color.

Lens contorol
IRIS : Adjust the aperture to change the brightness of the image.
Zoom : Adjust the image size
Focus : You can fine-tune the focus to accommodate thick samples.

Filter Replacement
Comes standard with a 595 nm filter.
Additional filters can be added.

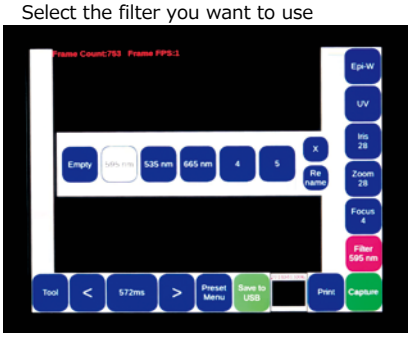
Data save
Capture Press the button to save the image to the device's internal memory.
Save to USB Press the button to save the image to the USB flash memory.
Data format : 16bit TIFF/8bit TIFF/JPEG/BMP

Exposure time control
Adjustable from 5 ms to 10 s

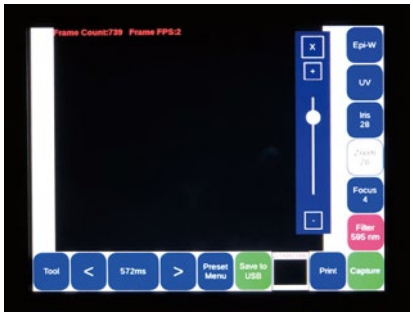
Print out button
Print the displayed image.

Camera settings
Set and save the imaging settings.

Filter Selection
Select the filter you want to use



Lens control
Adjust the aperture, zoom, and focus



■Imaging Using Various Light Sources

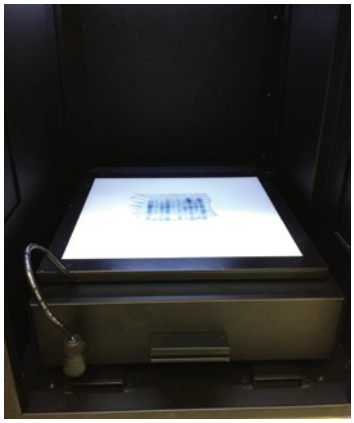
Gel cutting

All light sources, such as UV irradiation units, can be extended outside the cabinet. By using orange covers designed for UV or LED light sources to block the light, you can cut out the gel.

Fluorescence imaging using UV illuminator

Fluorescent substances such as ethylenediamine can be detected using ultraviolet light centered at 312 nm. The standard 595 nm filter is available for use.

※When photographing the gel, keep the door closed.

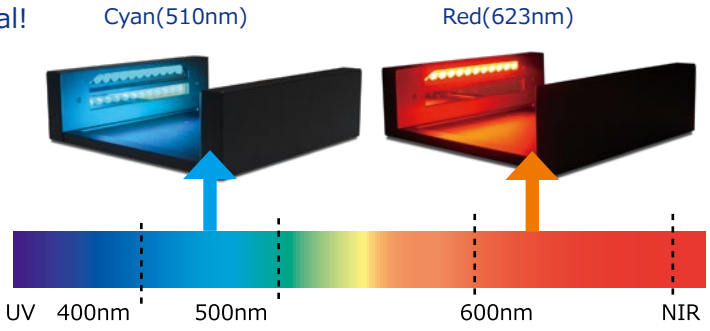


Colorimetric imaging using White illuminator

You can photograph CBB-stained gels and silver-stained gels after SDS-PAGE using a transmitted white light source.

"CyanRed Epi"—The perfect choice for UV removal!

The "CyanRed Epi" can emit two colors of excitation light: Cyan (510 nm) and Red (623 nm). This epi (epifluorescence) light source with low background noise enables the acquisition of high-intensity signals. The Cyan LED enables highly sensitive detection of fluorescent substances typically detected using conventional Blue or Green LEDs, with low background noise. The Red LED allows for the detection of fluorescents such as Cy5 and Alexa647 while suppressing background noise (a photography filter is optional).



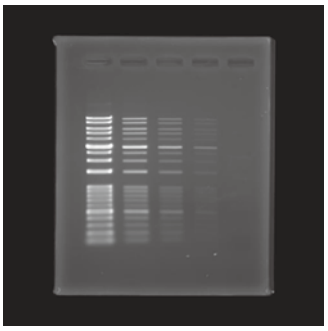
Detectable fluorescent detection reagent

CyanRed Epi	Fluorescent Dye
Cyan peak : 510nm 470-520nm ※Can be photographed using the standard 595 nm filter	EzFluoroStain DNA(ATTO) EzPreStain DNA&RNA(ATTO) SYBR Green/Safe/Gold MidoriGreen/GelGreen/Gel Red Ethidium Bromide(EtBr) EzLabel FluoroNeo(ATTO) SYPRO Ruby/Orange Fluorescein(FITC) Flamingo Gel Stain Pro-Q Diamond/Cy3 RFP(Red Fluorescent Protein)
Red peak : 623nm 590-640nm	Cy5/Alexa647 ※The "665nm LP Filter for WSE-5200/5300" is required separately.

How CyanRed Epi Glows

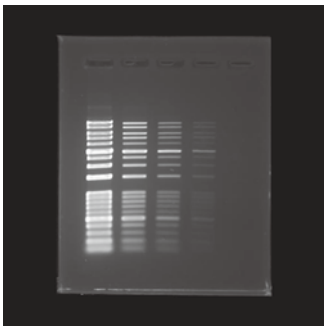
The lower LED lights up for Cyan, and the upper LED lights up for Red. Because it uses a reflected light method, the background noise is low, enabling highly sensitive detection.

Detection of Fluorescent Stained Gels Using UV Trans Illuminator DNA

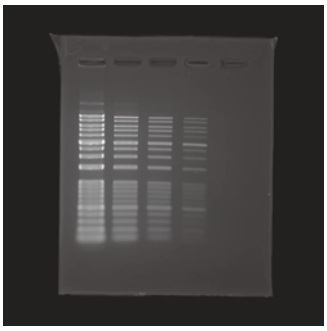


Staining reagent	EtBr
Light source	UV (312nm)
Optical filter	BPF595

Staining reagent	EzFluoroStainDNA
Light source	UV (312nm)
Optical filter	BPF595

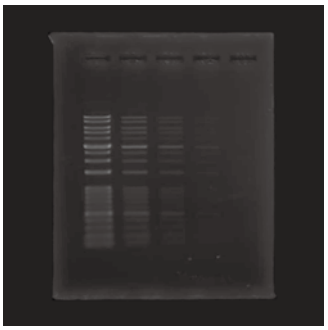


Staining reagent	GelRed
Light source	UV (312nm)
Optical filter	BPF595

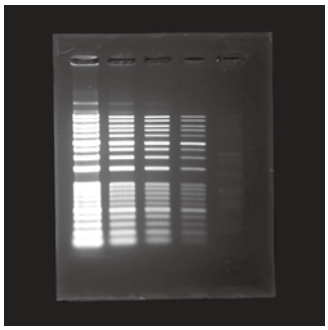


Staining reagent	EzFluoroStainDNA
Light source	UV (312nm)
Optical filter	BPF535

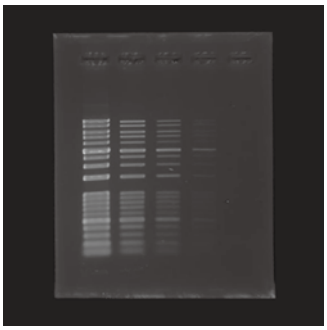
Detection of Fluorescent Stained Gels Using Cyan LED DNA



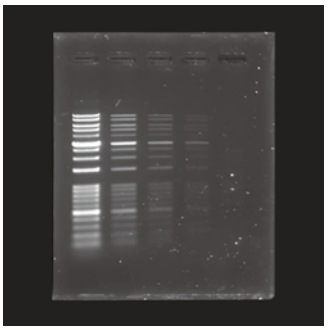
Staining reagent	EtBr
Light source	Cyan
Optical filter	BPF595



Staining reagent	EzFluoroStainDNA
Light source	Cyan
Optical filter	BPF595

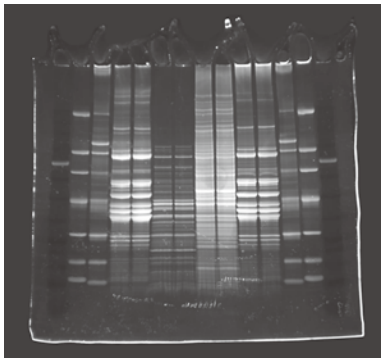


Staining reagent	GelRed
Light source	Cyan
Optical filter	BPF595

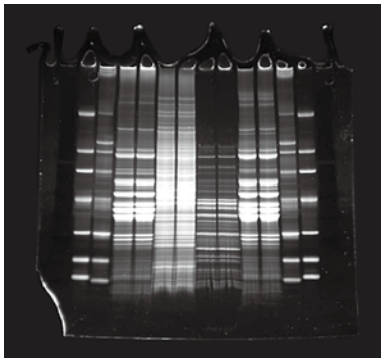


Staining reagent	MidriGreen Extra
Light source	Cyan
Optical filter	BPF595

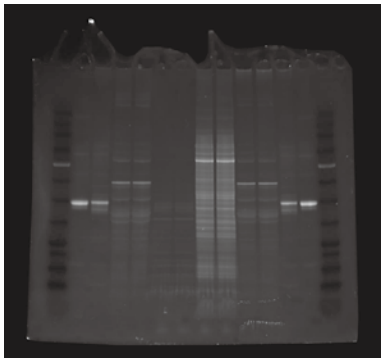
Detection of Fluorescent Stained Gels Using Cyan LED Protein



Staining reagent	SYPRO Ruby
Light source	Cyan
Optical filter	BPF595

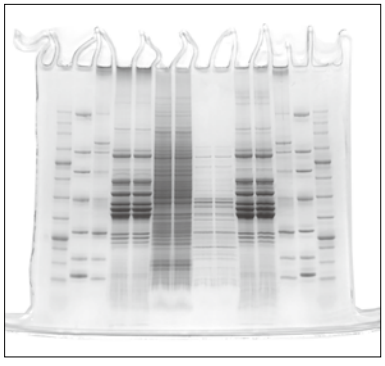


Staining reagent	Flamingo Gel Stain
Light source	Cyan
Optical filter	BPF595

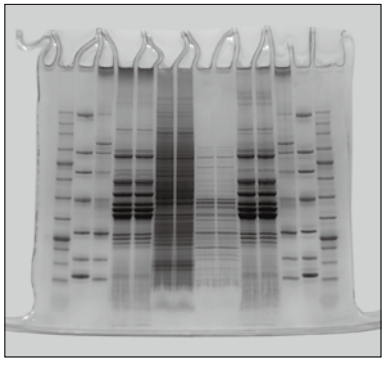


Staining reagent	Pro-Q Diamond
Light source	Cyan
Optical filter	BPF595

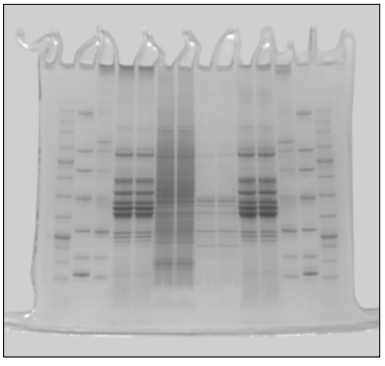
Detection of stained gels using Trans White illuminator Protein



Staining reagent	EzStain AQua
Light source	Trans White Illuinator
Optical filter	BPF535



Staining reagent	EzStain AQua
Light source	Trans White Illuinator
Optical filter	BPF595



Staining reagent	EzStain AQua
Light source	Trans White Illuinator
Optical filter	non-filter

Specification

	WSE-5300 Printgraph CMOS I
Camera	High-sensitivity monochrome CMOS camera (6 megapixels) Resolution: High : 2927x2054 / Standard : 1463x1027
Data save	Internal Memory / USB Memory Image Formats: 16-bit TIFF, 8-bit TIFF, BMP, JPEG
Lens	6x zoom lens (motorized: Iris/Zoom/Focus)
Image size	45mmx30mm-260mmx180mm
Monitor	8-inch capacitive touchscreen LCD panel
Filter	595nm bandpass filter（Electric switch-over / 6 positions) Option 535nm/665nm bandpass filter
Exposure time	5msec-10sec　Saturation detection function（White lebel)
Inter face	USB terminal x 3（Rear x2 / Front (for USB flash drives) x1) Ethernet x 1　Wi-Fi (wireless)
Dimensions / Weight	305(W)x450(D)x620mm(H)　・　28.0kg
Power	AC100-240V　50/60Hz　85W

System Configuration

	WSE-5300UV	WSE-5400A
Printgraph CMOS I Main Unit (with light-tight cabinet camera)	●	●
Touchscreen Monitor (Camera Controller)	●	●
Trans UV illuminator	●	●
Trans white illuminator	●	●
Orange cover for gel cutting	●	●
Gel tray S	●	●
CyanRed Epi		●
Printer（UP-X898MD)		●

Code	Product	Quantity
2305305	WSE-5300UV Printgraph CMOS Ⅰ	1 set
2305310	WSE-5300A Printgraph CMOS Ⅰ (ALLINONE)	1 set
2305225	WSE-5200/5300 CyanRed Epi	1
2305230	WSE-5200/5300 535nmBP filter	1
2305232	WSE-5200/5300 用 665nmLP filter	1
2140202	UP-X898MD Hybrid Graphic Printer	1
2140913	UPP-110HG Printer paper	Set of 10
2195931	Gel tray S　(194x164mm)	1
3535037	T-8 M UV lamp 8W 312nm	1

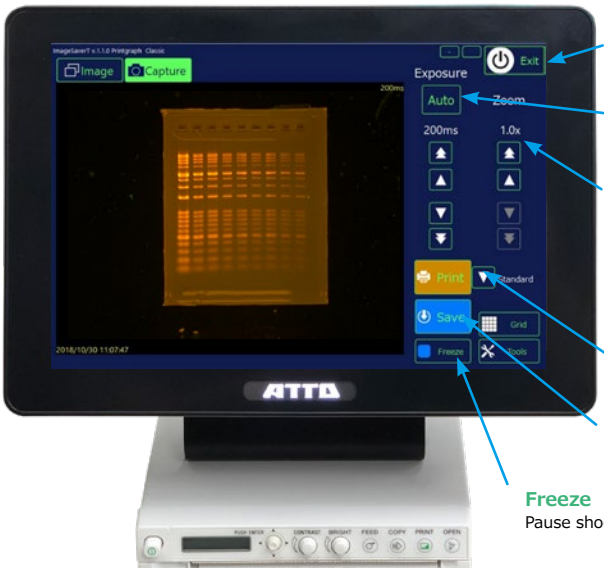
WSE-5400 Printgraph Classic

Features a color CMOS camera! Gel imaging system

It's called "Classic," but it's state-of-the-art!

The "WSE-5400 Printgraph Classic" is a Gel Documentation System equipped with a 3-megapixel color CMOS camera and a touch-panel controller, designed with a focus on ease of use. It allows for easy fluorescence imaging of DNA gels stained with ethidium bromide (EtBr) under UV light, as well as imaging of CBB-stained SDS-PAGE gel patterns using an optional white transmitted light source.
Captured data can be saved to a USB flash drive. By connecting the UP-X898MD Hybrid Graphic Printer, images can be printed out immediately. The date can also be printed on the images.

An easy-to-use touchscreen controller. USB mice are also supported.



Exit
Press this button to put the system to sleep.

Auto
Automatically adjust exposure time
1 msec–10 sec

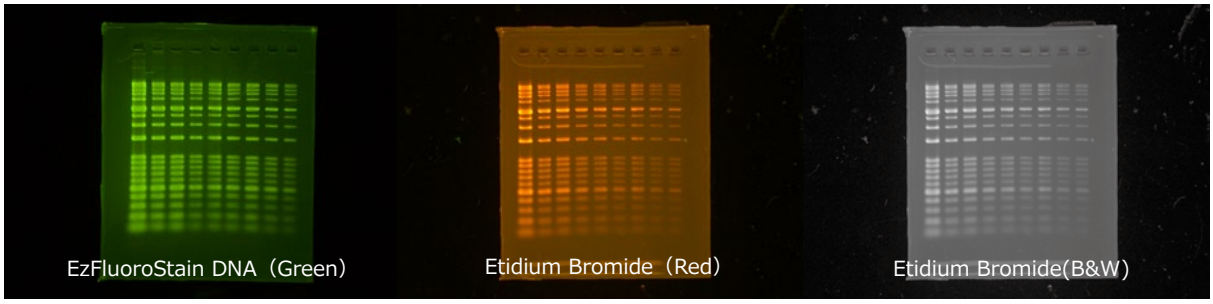
Zoom
Zoom adjustment
1x–8x (0.2x/1x increments)

Print
Print the image.
*Only when the printer is connected

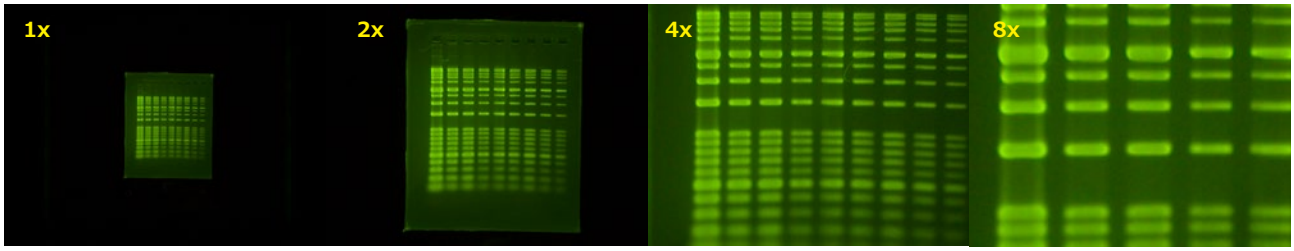
Save
Save the images to a USB flash drive.

Freeze
Pause shooting and display the image.

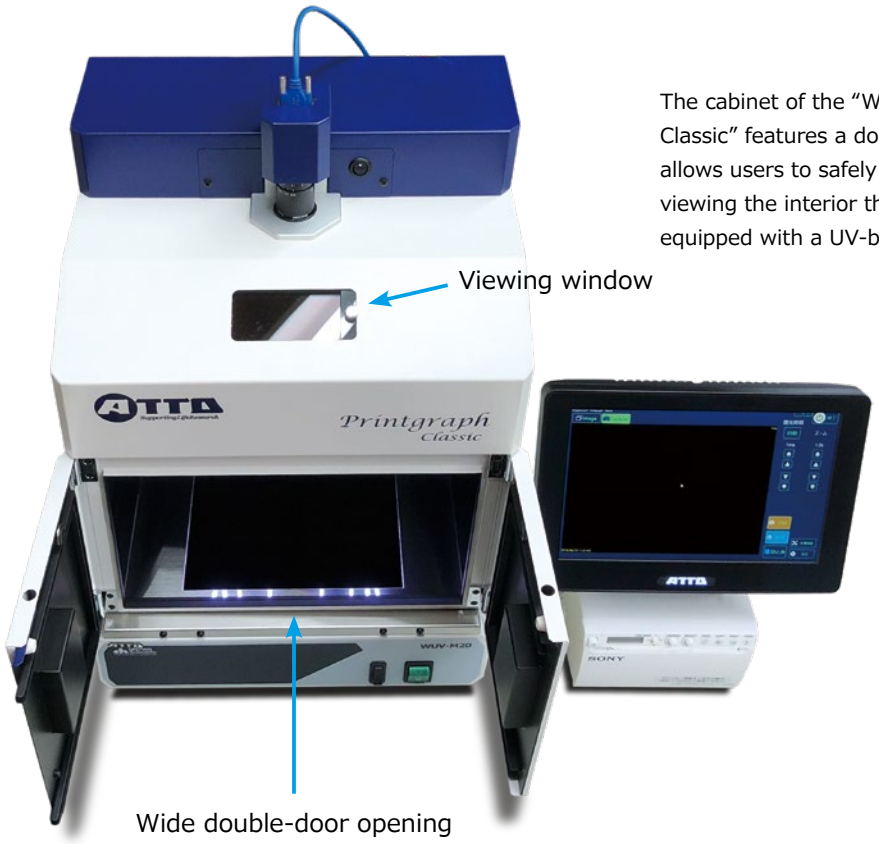
Sample images captured with a color CMOS camera



Zoom function The zoom can be adjusted from 1x to 8x in 0.2x or 1x increments.



Cabinet designed for gel cutting



The cabinet of the “WSE-5400 Printgraph Classic” features a double-door opening and allows users to safely cut bands from gels while viewing the interior through a viewing window equipped with a UV-blocking filter.

Quick start

Startup
→ Press the power button once to start up immediately!

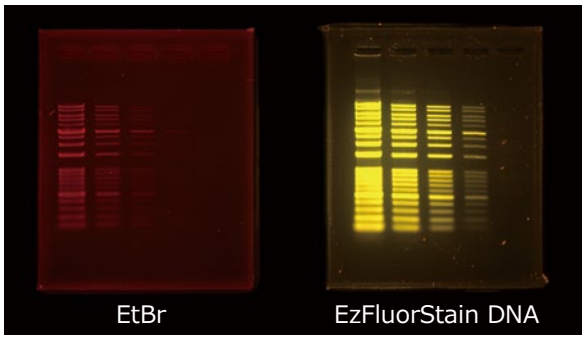
Mouse support available

The “WSE-5400 Printgraph Classic” features a touchscreen controller, allowing you to control the camera via touch. You can also operate it with a mouse by connecting one. Both wired and wireless mice are supported.

Color CMOS Gel Documentation System

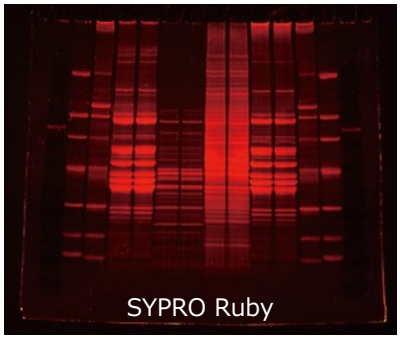
Imagable staining gel

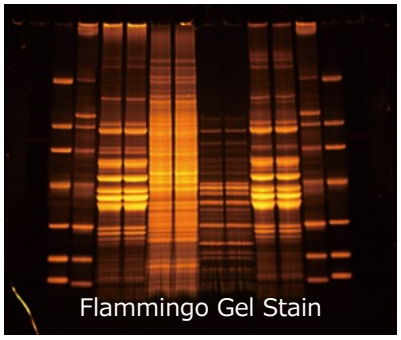
Fluorescent detection of nucleic acid electrophoresis patterns in agarose gels and polyacrylamide gels

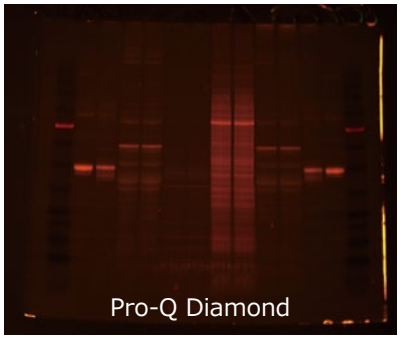


	DNA・RNA	Protein
Light source	UV（312nm） CyanLED（505nm）	←
Filter	Orange filter	←
Fluorescenct dye	EtBr、GelRed **EzFluoroStain DNA** **EzPreStain DNA&RNA** SYBR Gold/Safe/Green etc.	SYPRO Ruby **EzLabelFluoro Neo** Flammingo Pro-Q Diamond etc.

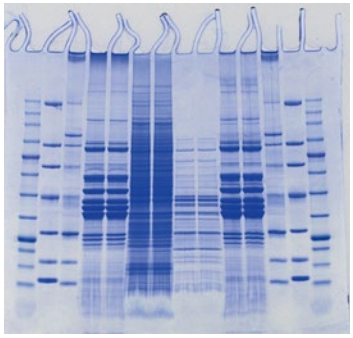
Fluorescent detection of protein electrophoresis patterns in polyacrylamide gels



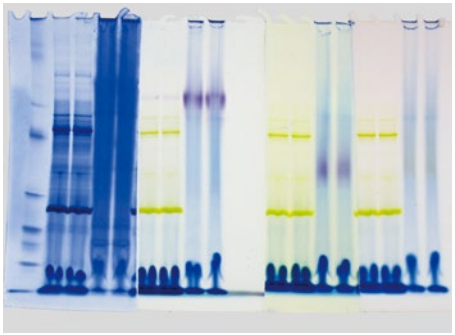




Detection of protein electrophoresis patterns in polyacrylamide gels using dye staining and activity staining



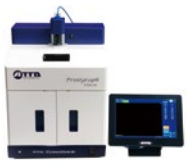
CBB staining



HR-CN PAGE Activity staining

Trans White	Epi White
Flat-viewer	落射WhiteLEDプレート
CBB staining Silver staining Ponsau S staining Activity staining etc.	Revers staining Stained membrane etc.

Installation Space and Weight

	WSE-5400-UP	WSE-5400-P	WSE-5400-U	WSE-5400Cy	WSE-5400
Space（mm）	650(W)x300(D)x535(H)	650(W)x300(D)x440(H)	650(W)x300(D)x535(H)	650(W)x300(D)x490(H)	650(W)x300(D)x440(H)
Weight（total）	22.1kg	14.1kg	19.5kg	14.2kg	11.5kg
Power consumption	204W	156W	74W	50W	26W
System image					

Main Specifications of the Fluorescent Excitation Light Source System

Product	Light source/wavelength	Lighting area	Dimension（WxDxH）
WSE-5600 CyanoView	CyanLED・Peak:505nm	150x150mm	253x220x36mm
WSE-5620 CyanoView Ⅲ	CyanLED・Peak:505nm	175x150mm	340x276x42mm
WUV-M20 UV illuminator	UV lamp・Peak:312nm	190x190mm	350x275x95mm

Specification

	WSE-5400 Printgraph Classic
Camera	Coler CMOS camera（3mega-pixcels) Switchable between color and black-and-white
Resolution	2048x1536
Data save	USB flash memory　8bit TIFF/BMP/JPEG　16bit TIFF
Zoom	1x- 8 x（Adjust using the control software)
Imaging size	25mmx18mm-200mmx150mm
Control	10-inch Touchscreen LCD Panel Controller
Filter	Orange filter
Exposure time	1msec-10sec　　with AutoExpo function
Dimensions / Weight	Cabinet : 340(W)x275(D)x437mm(H)　・　9.0kg Pnael PC : 264(W)x150(D)x222mm(H)　・　2.5kg
Power	AC100-240V　2A　50/60Hz　（AC adaptor)

System Configuration

	WSE-5400	WSE-5400-U	WSE-5400-P	WSE-5400-UP	WSE-5400-Cy	WSE-5400-CyP
Classic Main unit (Cabinet with CMOS camera)	●	●	●	●	●	●
Panel PC (Controler)	●	●	●	●	●	●
WUV-M20 UV illuminator		●		●		
WSE-5600 CyanoView						
WSE-5620 CyanoView Ⅲ					●	●
Flat-Viewer(Trans White)						
Printer（UP-X898MD)			●	●		●
System image						

Code	Product	Quantity
2305400	WSE-5400 PrintgraphClassic　Printgraph Classic/Panel PC	1 set
2305401	WSE-5400-U PrintgraphClassic Printgraph Classic/Panel PC/Trans UV illuminator	1 set
2305402	WSE-5400-P PrintgraphClassic Printgraph Classic/Panel PC/Printer	1 set
2305403	WSE-5400-UP PrintgraphClassic Printgraph Classic/Panel PC/Printer/Trans UV illuminator	1 set
2305413	WSE-5400-Cy PrintgraphClassic Printgraph Classic/Panel PC/CyanoViewⅢ	1 set
2305415	WSE-5400-CyP PrintgraphClassic Printgraph Classic/Panel PC/Printer/CyanoViewⅢ	1 set
2305423	AC Adapter for the WSE-5400 with Additional Light Source	1
2196160	Flat-Viewer	1
2305428	Epi WhiteLED plate set	1
2140202	UP-X898MD Hybrid Graphic Printer	1
2140913	UPP-110HG Printer paper	Set of 10
2195931	Gel tray S　（194x164mm)	1
3535037	T-8 M UV lamp 8W 312nm	1

WSE-5700 Digigraph

Equipped with a digital camera! Gel imaging system - please call it "Digi-Digi"

The "WSE-5700 Digigraph" is a space-saving Gel Documentation System equipped with a digital SLR camera. It facilitates fluorescence imaging of DNA gels stained with ethidium bromide (EtBr) using a cyan LED light source, as well as imaging of CBB-stained SDS-PAGE gel patterns using an optional white transmitted light source.
Imaged data can be printed out using an optional printer.

① Digital SLR camera
24-megapixel effective resolution
Motorized zoom/autofocus
SD card storage
Printer output/HDMI output

② Cabinet
Digital Camera Adapter
(Camera Rotation Supported)
Viewing Window with Orange Filter
Side Doors for Sampling (Both Sides)
Dedicated Gel Tray (15x15cm)

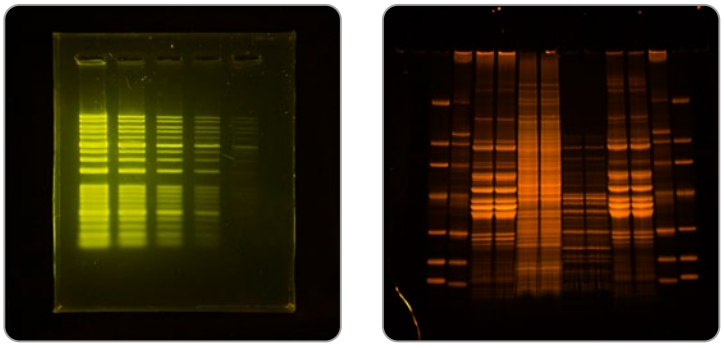
Installation space
W : 270mm
D : 220mm
H : 370mm

③ CyanLED Light
peak:505nm
Safe visible-light LEDs
Compact, space-saving light sources

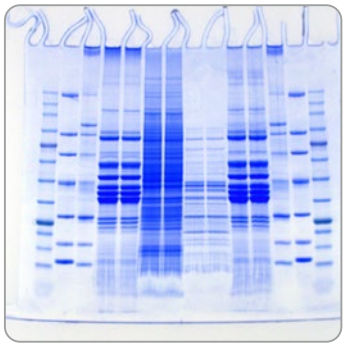
The Digigraph's cyan LED light source (peak wavelength 505 nm) enables imaging of electrophoresis gels stained with fluorescent detection reagents for nucleic acids or proteins. Detection reagents that are excited in the 470–520 nm (blue-green) range and emit fluorescence at 550 nm or higher can be used.

<Option>
You can use Trans White (5700/5650) to photograph SDS-PAGE gels stained with Coomassie Blue B.

CyanLED + Orange filter



Trans White Light



for DNA & RNA	for Protein	Staining dye
EtBr(Ethidiumbromide)	SYPRO Ruby	**EzStain AQua**
EzFluoroStain DNA	Flamingo Gel Stain	Quick CBB
EzPreStain DNA&RNA	Pro-Q Diamond	**EzStain Silver**
SYBR Gold/Green/Safe	**EzLabel Fluoro Neo**	etc.
MidoriGreen Extra	etc.	
GelRed		
etc.		

	WSE-5700 Digigraph
Camera	Digital camera:24-megapixel, 180-degree tilt-adjustable, 3-inch LCD monitor
Resolution	2048x1536
Data save	SD card (in digital camera) format: JPEG, Raw
Image size	5cmx3.5cm-200mmx150mm
Control	Operating a digital camera
Filter	Orange filter
Exposure	Auto Exposure Function
Dimensions / Weight	WSE-5700 : 270(W)x220(D)x370mm(H) ・4.99kg Cabinet : 270(W)x238(D)x260mm(H) ・ 3.24kg Light source（CyanoView IV） : 239(W)x220(D)x41mm(H) ・ 1.63kg Gel tray : 150(W)x180(D)x20mm(H) ・ 0.11kg
Power	AC adaptor : AC100-240V DC12V・2A 50/60Hz CyanLED Light : DC12V/1.6A(Digital camera, optional monitor, DC output for optional light source)

Model	WSE-5700	WSE-5650
	Digigraph	CyanoViewSmart II
Cabinet	●	●
CyanLED Light	●	●
Digital camera	●	–
Gel tray	●	●
Printer	–	–
Trans White	–	–
Monitor	–	–
Smartphone adapter	–	●

Code	Product	Quantity
2008180	WSE-5700 Digigraph Cabinet/CyanoViewIV/Digirtal camera	1 set
2008189	WSE-5650 CyanoViewSmart II Cabinet/CyanoViewIV	1 set
2008172	WSE-5630 CyanoView IV	1
2008173	Monitor for the WSE-5700	1
2008174	Trans White （5700/5650）	1
2008179	Sony Printer Expansion Kit for the WSE-5700 Monitor for the WSE-5700, Video Signal Converter, and Connection Cable	1 set
2008176	Canon Printer Kit (CP1500) for the WSE-5700	1 set
2008177	Smartphone Adapter (5700/5650)	1
2008178	Gel tray (5700/5650)	1
2140202	UP-X898MD Hybrid Graphic Printer	1
2140913	UPP-110HG Printer paper	Set of 10

Consumables for gel imaging systems

Gel tray

The UV-transparent acrylic gel trays included with the Gel Documentation System and Chemilumi Imager are available in the following sizes. The trays for the WSE-6100/6200/6270 models are designed specifically to be inserted into the shelves of a light-shielding cabinet. Please select the tray that matches the cabinet size of your imaging system.

Code	Product	Quantity
2195910	Gel tray L (300x250mm)	1
2195930	Gel tray M (192x215mm)	1
2195931	Gel tray S (194x164mm)	1
2195935	Gel tray (WSE-6100)	1
2195939	Gel tray (WSE-6175/6200/6270)	1

Filter holder

This is a filter holder for 50mm square filters, included with the Chemilumi Imager. Although it is included with the device, please purchase additional units if you plan to use multiple filters. Since the size varies by device model, please check the model number before selecting.

Code	Product	Quantity
2006177	Filter holder (WSE-6170/6175)	1
2006277	Filter holder (WSE-6270)	1

Optical filter 50mm square

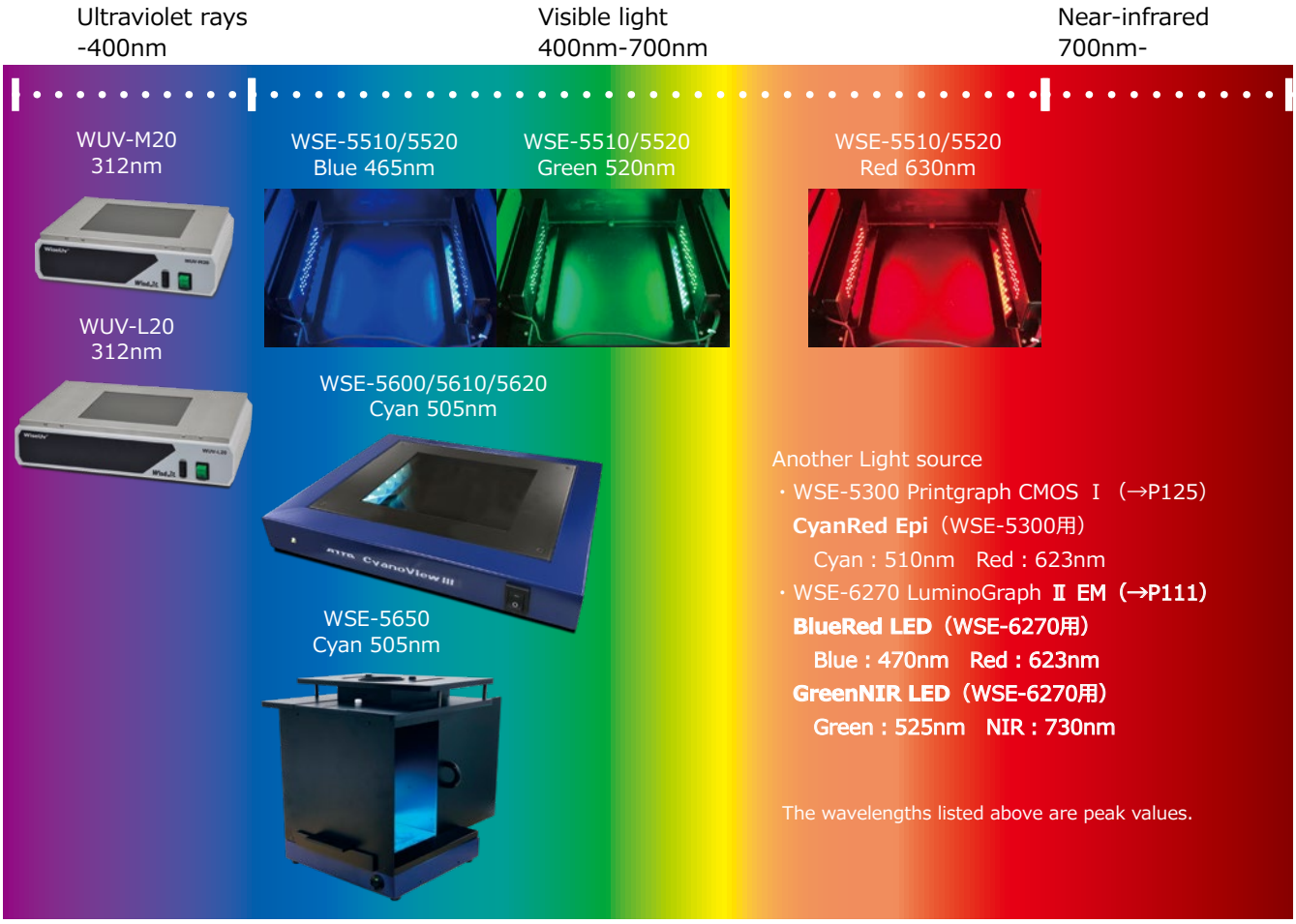
This is a photographic filter used for fluorescence photography, white-light photography, and other applications. It is designed to be mounted in a filter holder.The required specifications vary depending on the intended use. Please contact us for assistance in selecting the appropriate filter.

Code	Product	Quantity
2130414	YA-3 filter 50mm Square 560nm Long-pass filter / For fluorescence imaging	1
2130419	OY filter 50mm Square 540nm Long-pass filter / For fluorescence imaging	1
2130446	ND-0.1 filter 50mm Square Neutral density filter, 0.1% transmittance	1
2130452	R-60 filter 50mm Square 600nm Long-pass filter / For fluorescence imaging	1
2130430	Short wave pass filter 50mm Square UV and Near-Infrared Filter / For Fluorescence imaging	1
2008060	SCF515 filter 50mm Square 515nm Long-pass filter / For fluorescence imaging	1
2008062	BPF510 filter 50mm Square 510nm Bandpass filter / For fluorescence imaging	1
2008067	BPF525 filter 50mm Square 525nm Bandpass filter / For fluorescence imaging	1
2008069	BPF600 filter 50mm Square 600nm Bandpass filter / For fluorescence imaging	1
2008063	LPF690 filter 50mm Square 690nm Long-pass filter / For fluorescence imaging	1
2008065	BPF690 filter 50mm Square 690nm Bandpass filter / For fluorescence imaging	1
2008068	LPF830 filter 50mm Square 830nm Long-pass filter / For fluorescence imaging	1

Light source series

Page	Category	Product
127	Trans CyanLED light source	WSE-5600 CyanoView WSE-5610 CyanoView II WSE-5620 CyanoView III
128	Imaging Box with CyanLED	WSE-5650 CyanoView Smart II
129	Epi RGB Light source unit	WSE-5510 VariRays I WSE-5520 VariRays II
130	Trans white light source	Flat Viewer
131	Trans UV illuminator	WUV-M20 UV illuminator WUV-L20 UV illuminator,UV lamp
132	Thermal Printer	UP-X898MD Hybrid Graphic Printer

Light source for fluorescence excitation



WSE-5600 CyanoView / WSE-5610 CyanoView II
WSE-5620 CyanoView III

Transmissive Cyan Light Source for Fluorescence Excitation-Now UV-Free!

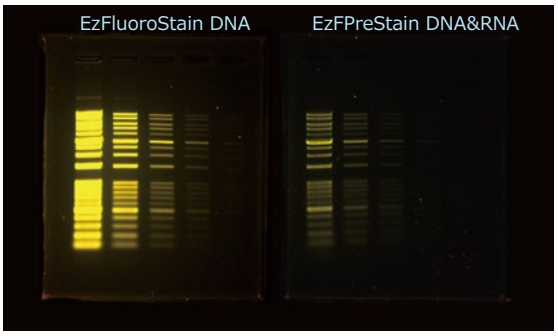
- **Cyan LED light source capable of exciting EtBr**
- **Blue-green excitation**
- **Transmissive type, allowing gel cutting**
- **Can be installed inside the LuminoGraph series**
- **Compatible with Printgraph Classic**

The WSE-5600 CyanoView is a blue-green LED (470–510 nm) transmission light source designed for fluorescence excitation. It can excite fluorescent dyes such as ethidium bromide (EtBr), MidoriGreen, SYBR Green I/II/Gold/Safe, SYPRO Ruby, and Pro-Q Diamond, making it ideal for the detection of fluorescence in proteins and nucleic acids.
It is compatible with various imaging systems, such as the LuminoGraph series and Printgraph Classic.

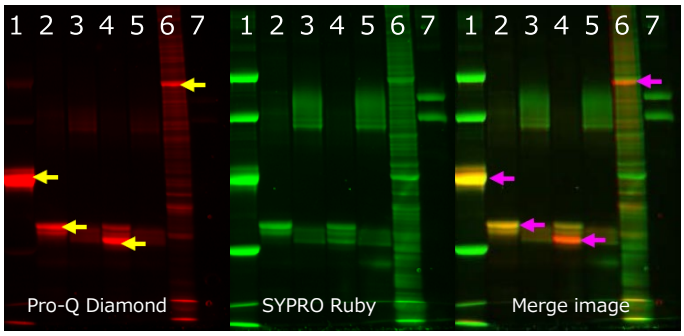
WSE-5620 CyanoViewⅢ

Fluorescent gel imaging requires optical filters such as the YA-3 and R-60.

	WSE-5600 CyanoView	WSE-5610 CyanoView II	WSE-5620 CyanoView III
Light source	CyanLED Peak : 505nm FWHM* : ±25nm (*=Full width at half maximum)		
Irradiation area	150x150mm	175x150mm	175x150mm
Luminous intensity	2.5mW (central section)	1.5mW (central section)	1.5mW (central section)
Dimension	253(W)x220(D)x36mm(H)	290(W)x223(D)x34.2mm(H)	340(W)x276(D)x42mm(H)
Weight	2.0kg	2.0kg	2.7kg
Power	DC12V 1.1A 18W Power supplied from the CyanoView power supply box or the interior of the imaging unit	DC12V 1.2A 18W Power supplied from the CyanoView power supply box or the interior of the imaging unit	DC12V 1.2A 18W Powered by an AC adapter
Product Configuration	WSE-5600 CyanoView x 1 Connection Cable x 1 Manual	WSE-5610 CyanoViewⅡ x 1 Connection Cable x 1 Manual	WSE-5620 CyanoViewⅢx 1 Connection Cable x 1 AC adaptor,Manual
Ambient temperature	20℃-30℃	20℃-30℃	20℃-30℃



Light source : WSE-5620 CyanoView III
Imager : WSE-5400 Printgraph Classic (Color imaging)



We detected gels stained with the phosphoprotein detection reagent Pro-Q Diamond and the protein detection reagent SYPRO Ruby using CyanoView.
After detection, we merged the two images.
While detecting Pro-Q Diamond is difficult with a standard blue LED light source, CyanoView can excite both fluorescent detection reagents.

1 : EzStandard(Ovalbumin)
2 : α-casein
3 : Dephosphorylated α-casein
4 : β-casein
5 : Dephosphorylated β-casein
6 : Histone
7 : Transferrin & BSA
※ : phosphorylated protein

Code	Product	Quantity
2008150	WSE-5600 CyanoView	1
2008152	WSE-5610 CyanoView II	1
2008153	WSE-5620 CyanoView III	1
2008155	CyanoView power supply box (12V2A)	1
2008156	Connection Cable for CyanoView	1

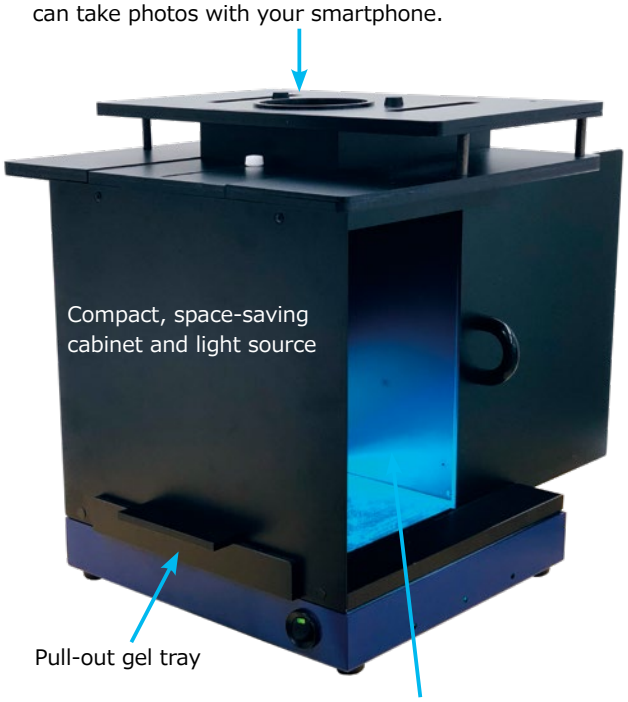
WSE-5650 CyanoView Smart II

Gel imaging box with CyanLED light source for fluorescence excitation, for digital cameras and smartphones

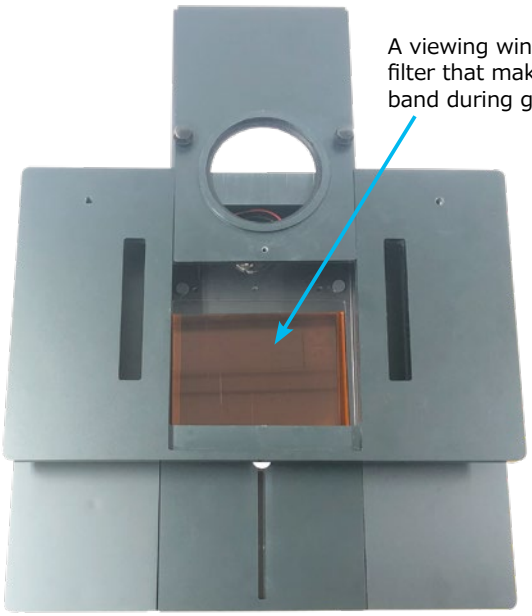
- Cyan LED light source capable of exciting EtBr
- Blue-green excitation
- Viewing window with orange filter
- Allows gel imaging with digital cameras or smartphones
- Suitable for student experiments and similar applications

	WSE-5650 CyanoViewSmart II
Light source	CyanLED Peak : 505nm FWHM : ±25nm
Irradiation area	150x150mm
Viewing window	Orange filter
Dimension	Cabinet : 270(W)x238(D)x260mm(H) Light source : 239(W)x220(D)x41mm(H)
Weight	Cabinet:3.25kg Light source:1.63kg Gel tray:108g Total:4.99kg
Power	DC12V 2A
AC adaptor	input AC100-240V 50/60Hz output DC12V 2A
Product Configuration	CyanoViewSmartII x 1 WSE-5630 CyanoViewIV x 1 Gel tray x 1, Smartphone adapter x 1 AC adaptor x 1, Manual
Ambient temperature	20℃-30℃

By attaching the included “smartphone adapter,” you can take photos with your smartphone.



It features sliding doors on both sides, making it easy to operate when cutting out the gel.



A viewing window with an orange filter that makes it easy to check the band during gel cutting

This unit is a lightweight, space-saving light-shielding cabinet equipped with a CyanLED light source. The viewing window (with an orange filter) at the top of the cabinet allows for gel observation and gel photography using digital cameras or smartphones.

The CyanoView series features a CyanLED light source developed to excite ethidium bromide (EtBr), which is difficult to detect with standard blue LED light sources. Band excision and imaging from EtBr-stained gels are possible with sensitivity comparable to that of UV irradiation systems. Since it does not degrade nucleic acids like UV light does, the yield of nucleic acids after excision is higher. It also supports fluorescent dyes such as SYBR Green and SYPRO Ruby, which are excited by blue LEDs, as well as green LED-excited dyes such as Pro-Q Diamond.

Code	Product	Quantity
2008189	WSE-5650 CyanoViewSmart II	1 set

WSE-5510 VariRays I / WSE-5520 VariRays II

Epitomical light source for fluorescence excitation featuring red, green, and blue LEDs

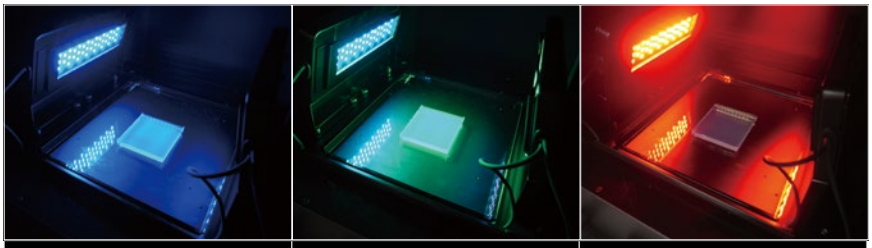
- **Equipped with three types of LED light sources in a single unit, supporting a wide range of fluorescence detection applications**
- **Ideal for Western blot detection!**
- **Perfect for fluorescence detection in stained gels and TLC!**

The WSE-5510/5520 VariRays I/II is a three-color LED epi-illuminator designed for fluorescence excitation, utilizing three-color light-emitting diodes (LEDs) as the excitation light source. A switch allows the three colors—blue (465 nm), green (520 nm), and red (630 nm)—to be illuminated individually or simultaneously. It can be used for the detection of fluorescence in proteins and nucleic acids, as well as for the detection of fluorescent proteins.
The optional primary filter set reduces background noise from the light source; the filters are mounted on a frame that can be easily attached and detached using magnets.

	WSE-5510 VariRays I	WSE-5520 VariRays II
LED Light source	Blue : 465nm(Peak) FWHM:30nm Red : 630nm(peak) FWHM:20nm	Green : 520nm (Peak)FWHM:40nm
Irradiation area	155x155mm	180x155mm
Luminous intensity	Blue:1000-1500μW Green:400-700μW Red:500-1000μW	
Dimension	263(W)x223(D)x75mm(H)	300(W)x223(D)x91mm(H)
Weight	1.37kg	1.45kg
Power	DC12V 2A 24W (AC adaptor)	

WSE-5510 VariRays I

Primery filter set（Set of 2）



蛍光物質 青励起	蛍光物質 緑励起	蛍光物質 赤励起
GFP/SYBR Green/SYBR Safe/ SYBR Gold/MidoriGreen/ GelGreen/EzFluoroStain DNA EzLabel FluoroNeo/FITC/Cy2 SYPRO Ruby/SYPRO Orange/ Flamingo Gel Stain etc.	RFP/Pro-Q Dioamod/ Ethidium Bromide Cy3 etc.	Alexa647/Cy5 etc.
Optical filter BPF510/SCF515/OY/YA-3	Optical filter R-60	Optical filter LPF-690

When installed inside the WSE-6100/6200, the light intensity can be adjusted in 100 steps. When used independently, a power supply unit is required.

The fluorescent materials listed here are representative examples for each light source. Please contact us if you are considering a fluorescent material not listed in the table.

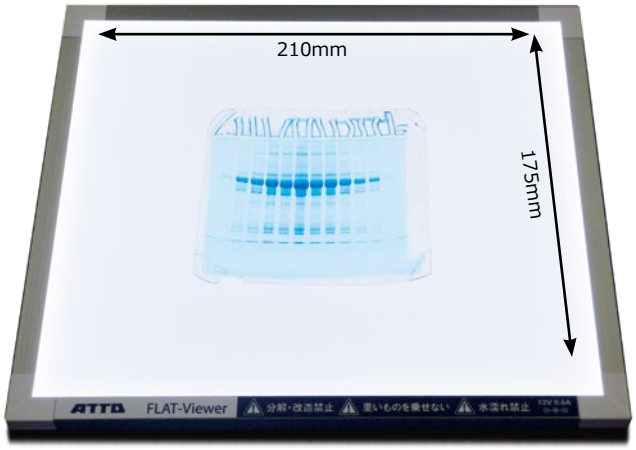
Code	Product	Quantity
2008101	WSE-5510 VariRays I	1
2008102	WSE-5520 VariRays II	1
2008110	VariRays power supply BOX	1
2008117	Primary Filter Set for VariRays I & II (Blue)	1
2008118	Primary Filter Set for VariRays I & II (Green)	1
2008062	BPF510 filter 50mm square	1
2008060	SCF515 filter 50mm square	1
2130414	YA-3 filter 50mm square	1
2130419	OY filter 50mm square	1
2130452	R-60 filter 50mm square	1
2008063	LPF690 filter 50mm square	1

Flat Viewer

A white transmitted light source with minimal illumination unevenness

- **Can be installed and controlled within the LuminoGraph series**
- **Light source for imaging CBB-stained gels, silver-stained gels, and similar samples**
- **As a light source for flat-field correction**

	Flat Viewer
LED Light source	白色LED光源
Irradiation area	210mm(W)x175mm(D)　輝度差10%以下
light-emitting surface	230mm(W)x195mm(D)
Dimension	250mm(W)x215mm(D)x10mm（H)
Weight	450g（本体のみ）
Power	DC12V　8W ・Use the AC adapter for the flat-panel viewer ・Power supplied from the imaging system cabinet

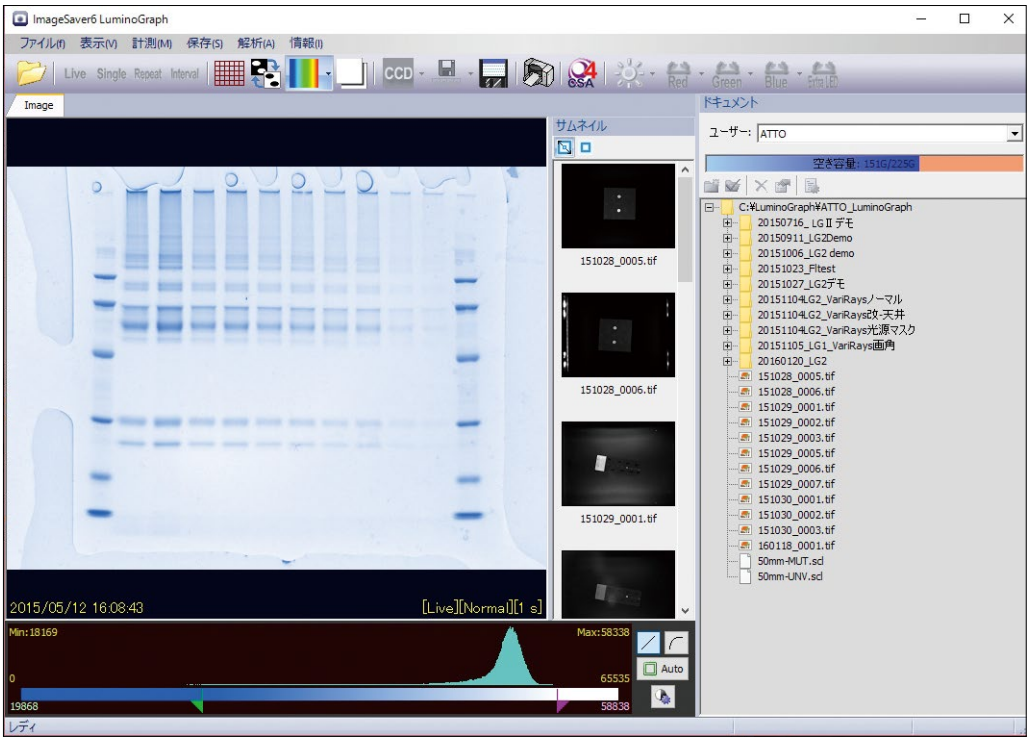


*Note: Although the light source measures 230 x 195 mm, we do not guarantee the luminance distribution (luminance difference of less than 10%) within 10 mm of either edge. Please use the area near the center of the light source when taking photographs.

Flat-Field Correction

The Flat Viewer can be used for peripheral illumination correction on lenses, taking advantage of its characteristic of having less than 10% brightness variation.The “WSE-6175 LuminoGraph I CMOS” and “WSE-6270 LuminoGraph II EM” models support flat-field correction using the Flat Viewer and the “ND-0.1 Filter (50 mm square)” .
CBB-stained gel images captured with the LuminoGraph series after performing flat-field correction can achieve high quantitative accuracy when saved as 16-bit TIFF files (65,536 levels). Flat-field correction is a standard feature of the LuminoGraph series.

Gel images of CBB-stained samples in the LuminoGraph series (ImageSaver 6 software / pseudo-color CBB display)



Code	Product	Quantity
2196160	Flat Viewer	1
2196161	AC Adapter for Flat Viewer	1
2130446	ND-0.1 filter 50mm square	1

WUV-M20 Compact Desktop Trans UV Illuminator

Irradiation with 312 nm ultraviolet light
Compact transmissive fluorescence excitation light source

WUV-L20 Desktop Trans UV Illuminator

Irradiation with 312 nm ultraviolet light
transmissive fluorescence excitation light source

- Light source for detecting fluorescent dyes for proteins and nucleic acids

WUV-M20
Filter size : 195x195mm
Installation space : 350mm x 275mm

WUV-L20
Filter size : 200x200mm
Installation space : 350mm x 275mm

	WUV-M20 Compact Desktop Trans UV Illuminator	WUV-L20 Desktop Trans UV Illuminator
Wavelength	312nm	312nm
Lamp	8W x 6	15W x 6
Ignition method	Inverter-type	Inverter-type
Output Selection	100% / 75%	100% / 75%
Filter size	195x195mm	200x200mm
Dimension	350 (W) x275 (D) 95mm (H)	495 (W) x330 (D) 95mm (H)
Weight	8.0kg	10.0kg
Power	AC 110V 50/60Hz 95W	AC 110V 50/60Hz 180W

Code	Product	Quantity
3532197	WUV-M20 Compact Desktop Trans UV Illuminator	1
3532203	WUV-L20 Desktop Trans UV Illuminator	1
3535037	T-8 M UV lamp 8W 312nm	1
3535041	T-15 M UV lamp 15W 312nm	1
2195910	Gel tray L (300x250mm)	1
2195930	Gel tray M (192x215mm)	1
2195931	Gel tray S (194x164mm)	1

Compatible with older models: UV lamp

Code	Product	Quantity
3532036	FG-1P glow lamp (15-30W)	1
3532037	FG-7P glow lamp (4_6_8_10W)	1
3535035	T-8 C UV lamp 8W 254nm	1
3535036	T-8 L UV lamp 8W 365nm	1
3535040	T-15 C UV lamp 15W 254nm	1
3535042	T-15 L UV lamp 15W 365nm	1

UP-X898MD Hybrid Graphic Printer

Quickly print out gel images and other materials

- **Compatible with the LuminoGraph series**
- **Compatible with the Printgraph series**
- **Prints one page every 2–3 seconds**
- **Uses thermal roll paper**

	UP-X898MD Hybrid Graphic Printer
Print size	STD 94x73mm　SIDE 124x96mm
Resolution	325DPI
Dimensions / Weight	154(W)x240(D)x88mm(H)　2.7kg
Data Input	Digital（USB）/ Analog VIDEO
Imager	Printgraph series Digigraph LuminoGraph series
OS	Windows 11/10　64/32bit
Printer paper	UPP-110HG
Power	AC100-240V　50/60Hz　115W

You can connect to the Gel Documentation System or Chemilumi Imager unit, or to the control PC, via USB to print out captured images. You can then paste these into your lab notebook or similar to preserve your data.

Instructions for Replacing Printer Paper

Press the OPEN button to open the paper holder.

Peel off the label from the printer paper, load it into the holder, and close the lid. Position the label so that the adhesive extends beyond the paper cutter.

Store printer paper in a cool place. After printing, store the photos away from direct sunlight, organic solvents, and high temperatures.

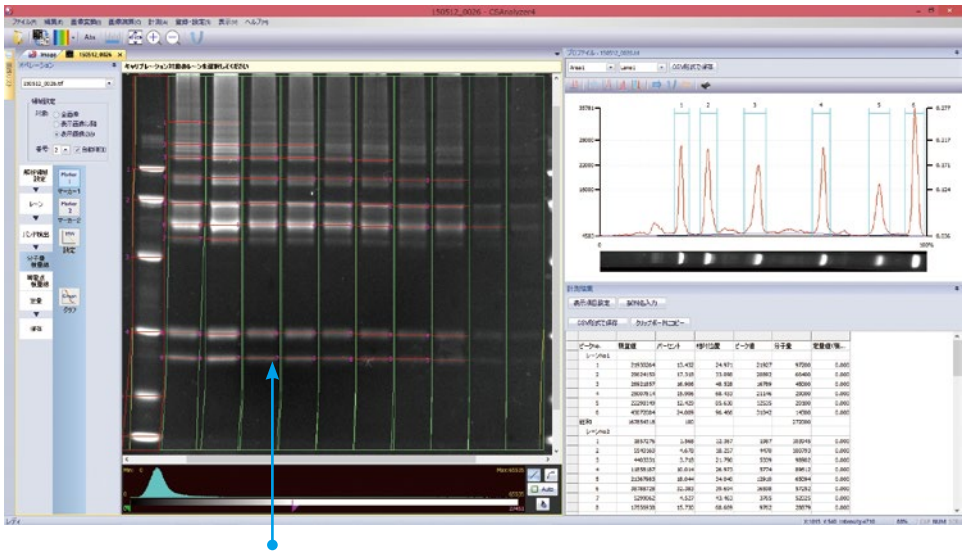
Code	Product	Quantity
2140202	UP-X898MD Hybrid Graphic Printer	1
2140913	UPP-110HG Printer paper	Set of 10

CS Analyzer 4

Image analysis software supporting quantitative analysis and normalization

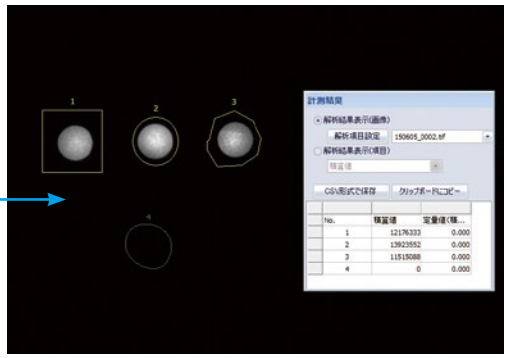
- **Software for quantitative analysis of electrophoresis and Western blot patterns**
- **Molecular weight measurement and concentration quantification of bands and spots**
- **Packed with practical and convenient features, including image overlay functionality!**
- **Function for creating time-lapse videos from images captured by the WSL-1850 CytoWatcher II**

"CS Analyzer" is image analysis software capable of measuring electrophoresis gel patterns and Western blot patterns captured using the "LuminoGraph Series," "Printgraph Series," and other systems, enabling the quantification of molecular weight and concentration. It can also analyze images captured with digital cameras or image scanners, provided they are in a supported format (such as TIFF or JPEG). It also features a function for creating time-lapse videos from images captured by the WS-1850 CytoWatcher II.



Measurement of electrophoresis patterns

"Lane Measurement" scans the bands within a lane to detect peaks. It automatically sets a baseline and peak separation lines for each lane's profile (waveform) and calculates the integrated values for each band component. Since the relative positions are calculated based on the band peaks, it is possible to determine the molecular weight if a molecular weight marker is present.

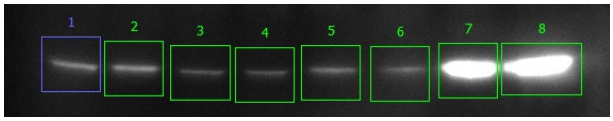


Spot measurement

"Spot Measurement" involves selecting dots or bands within the measurement area, subtracting the background value, and calculating the integrated value. If a reference spot is available, relative concentration quantification is also possible. Measurement results from "Lane Measurement" and "Spot Measurement" can be output in text format.

Quantification of the target band

We will make the comparison using the concentration of the reference standard. By checking the "Normalized Value" box when creating the calibration curve,you can obtain quantitative results based on normalized values.



No.	積算値	定量値(ノー...	ノーマライズ値	Ref.スポット比
1	2436210	100.000	2436210	1.00000000
2	1686438	64.461	1570396	1.07389332
3	0	0.000	0	0.90538623
4	0	0.000	0	1.05814518
5	1766030	63.513	1547321	1.14134681
6	3710721	179.693	4377710	0.84763972
7	20177971	1095.120	26679428	0.75631199
8	31790942	1656.919	40366027	0.78756678
9	0	0.000	-	-

Here are the imaging systems compatible with the currently available CS Analyzer 4.
You can open and analyze raw images (16-bit TIFF or 16-bit CCD format) or 8-bit images saved using the imaging systems listed below.
Additionally, images from imaging systems not listed below can also be analyzed, provided they are in a supported format.

Uses	Product
Chemiluminescence & Fluorescence imaging sysytem	WSE-6270 LuminoGraph Ⅱ EM WSE-6370 LuminoGraph Ⅲ Lite WSE-6175 LuminoGraph Ⅰ CMOS
Fluorescence imaging sysytem	WSE-5300 Printgraph CMOS Ⅰ WSE-5400 Printgraph Classic
Time-lapse Cell Imaging System	WSL-1850 CytoWatcher
Solar Panel Evaluation System	WSL-2000 SCREMS

Specipication

	CS Analyzer 4
OS	Windows 11/10 64/32bit
Language	Japanese/English (selectable during installation)
Memory Storage Capacity	8 GB or more recommended 10 GB or more of free storage space recommended
Format	6-bit images: TIFF, CCD (ATTO proprietary format) 8-bit images: TIFF, JPEG, BMP
Image Display	白 Black-and-white inversion / Contrast adjustment / Image saving function Pseudo-color display (256 colors / R/G/B/CBB coloring)
Image Conversion	Absorbance Conversion (Image Conversion of Dye Staining Patterns) Image Mode Conversion (Bit Depth Conversion / Color Channel Conversion) Image Rotation, Distortion Correction, Noise Filtering, Hot Pixel Removal Image Resolution Conversion (2x / 1/2x) Video Creation (AVI Format)
Image Processing	RGB compositing and image arithmetic (addition, subtraction, multiplication, division) Image overlay (merging of fluorescence images and molecular weight marker images)
Image Analysis	Lane measurement (normalizable and quantifiable) Spot measurement (normalizable and quantifiable) Plate measurement (quantifiable) Data storage and reporting functions
Calibration	Molecular weight calibration (marker registration supported) Scale calibration (supports full-size printing)
Data save	Save image as (Save displayed image) Video format (AVI) Save analysis data Save report (PDF) / Print
Print out	Supports printing of displayed images and reports
Security Measures	Can be updated to the Security Update Version (optional)

Code	Type Product	Quantity
2110030	CS Analyzer version4 for Windows	1
2110024	CS Analyzer for Windows (Licensed Version)	1
2110033	CS Analyzer 4/IS7 LG II EM Security Ver.UP	1
2110034	CS Analyzer 4/IS7 LG I CMOS Security Ver.UP	1

CS Analyzer 4/IS7 LG II EM Security ver.UP
CS Analyzer 4/IS7 LG I CMOS Security ver.UP

- **User management and restrictions on configuration changes via administrator privileges**
- **Security settings: Login password configuration, automatic logoff feature**
- **Storage location restrictions: Restrict data storage locations (overwriting not allowed)**
- **Backup settings: Back up configuration files, image files, and analysis data files when the software is closed**
- **Operation history logging (audit trail)**
- **Restrictions on file operations on the PC**

研究の信頼性をサポート

This is a security update for the LuminoGraph series control software “ImageSaver7” and the image analysis software “CS Analyzer4.” The security software restricts access to the imaging system to authorized users and limits the deletion or transfer of data. It also records a log of software usage. User management is handled by the administrator.

	CS Analyzer4 security	ImageSaver7 EM security	ImageSaver7 CMOS security
OS	Windows 11（64bit）	Windows 11（64bit）	Windows 11（64bit）
Features	Image analysis User and operation logging Data retention limits, etc.	Control of the WSE-6270 User and operation log recording Data storage limits, etc.	Control of the WSE-6175 User and operation log recording Data storage limits, etc.
Administrator	Administrator: 1 (Fixed username: Set password)		
Users	Multiple (Addition and removal by Administrator only)		
Management Items	Add/Remove Users / Security Settings (Administrator Management) / Storage Location Restrictions / Backup Settings/Automatic Logoff Settings, etc.		

Compatibility of the imaging system and security software

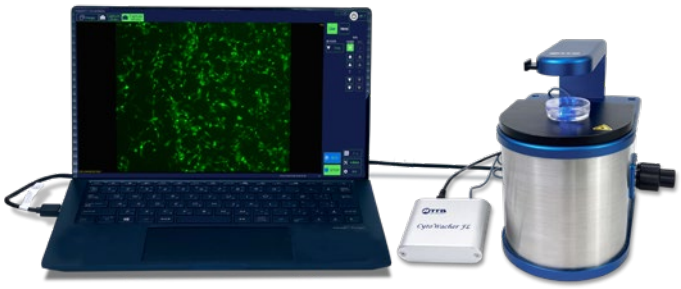
	WSE-6270 LuminoGraph Ⅱ EM	WSE-6175 LuminoGraph Ⅰ CMOS
OS	Windows 11（64bit）	Windows 11（64bit）
Contol software	ImageSaver7 EM	ImageSaver7 CMOS
Analysis software	CS Analyzer4	CS Analyzer4

Code	Product	Quantity
2110030	CS Analyzer version4 for Windows	1
2110033	CS Analyzer4/IS7 LG II EM Security Ver.UP	1
2110034	CS Analyzer4/IS7 LG I CMOS Security Ver.UP	1

WSL-1850 CytoWatcher Ⅱ

Simple Digital Microscope System for Cell Time-Lapse Observation

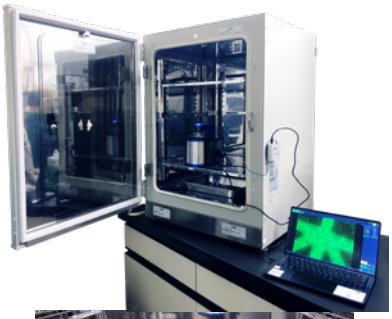
- Low-magnification brightfield observation of cultured cells
- Compact size suitable for any location
- Can be used inside a CO_2 incubator (moisture-resistant design)
- Equipped with a 5-megapixel color CMOS camera
- Supports time-lapse imaging of samples
- Model compatible with fluorescence imaging featuring a BlueLED (WSL-1850-B)

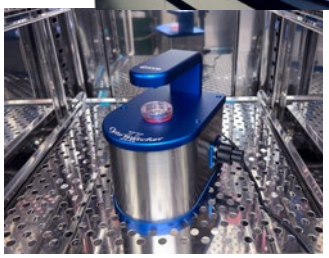


	WSL-1850 CytoWatcher Ⅱ	WSL-1850-B CytoWatcher Ⅱ FL
Camera	5-megapixel color CMOS camera	
Resolution	2448 x 2048	
competition ratio	光 4x optical zoom (digital zoom: −16x)	
Field of view	1.720 mm x 1.429 mm	
Focus adjustment	Manual adjustment using the handle	
Light source	White LED (transmitted light)	White LED (transmitted light) Blue LED (peak wavelength 465 nm, side-emitting raked illumination)
Filter	–	Excitation: 480 nm short-pass Absorption: 525 / 45 nm bandpass (interchangeable)
Moisture resistance	Can be used at 95% relative humidity (can be installed inside a CO_2 incubator)	
Control software	ImageSaverT Imaging: Live / Still Images / Time-lapse Image formats: 8-bit TIFF / BMP / JPEG (Color / Monochrome)	
PC Connection	USB3.0 x 1	USB3.0 x 1, USB2.0 (または 3.0) x 1
OS	Windows 11/10 (64 / 32 bit)	
Dimensions / Weight	130 (W) x 180 (D) x 190 (H) mm, 2.5 kg	130 (W) x 180 (D) x 190 (H) mm, 2.9 kg
Power	USB power supply (bus-powered)	

Code	Product	Quantity
3601850	WSL-1850 CytoWatcher Ⅱ	1 set
3601853	WSL-1850-B CytoWatcher Ⅱ FL	1 set
3601806	Fluorescence Imaging Unit B for WSL-1800/1850	1 set
3601808	Windows PC for Controlling the WSL-1800/1850	1 set
3601809	USB 3.0 Extension Cable	1

Cell Culture and Observation System





Can be installed in a CO_2 incubator

The CytoWatcher II unit features a moisture-resistant design, allowing for time-lapse imaging while culturing cells inside a high-humidity CO_2 incubator. There is no need to invest in an expensive microscope stage culture system.

Model compatible with fluorescence imaging

A model capable of both brightfield and fluorescence imaging.
Oblique-incident (side-illuminated) blue LED light source (465 nm)
Excitation (480 nm short-pass) filter
Absorption (525/45 nm bandpass) filter

Imaging of green fluorescent probes (GFP, FITC, Alexa Fluor 488, etc.)

A desktop microscope

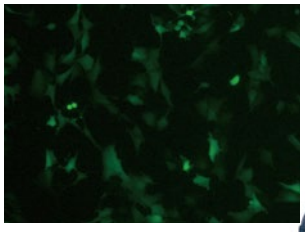
Its compact design allows it to be used even in limited spaces such as laboratory benches or clean benches. It is also easy to transport, so you can take it to your workspace and use it there.

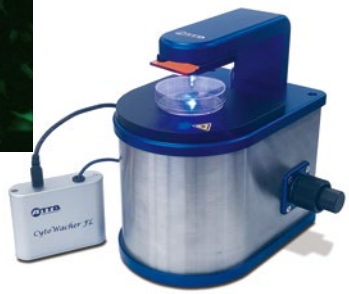
Just connect it to your PC with a USB cable

The CytoWatcher II connects to a Windows PC (sold separately) via a USB 3.0 cable (power is supplied via USB from the PC). Simply launch the dedicated ImageSaverT software (included as standard) to view live cell images immediately. Saving images and capturing time-lapse footage can also be done with a few simple steps.

Two units can be controlled from a single PC

You can connect two CytoWatcher II units to a single PC to capture time-lapse footage of two samples simultaneously.





CytoWatcher FL

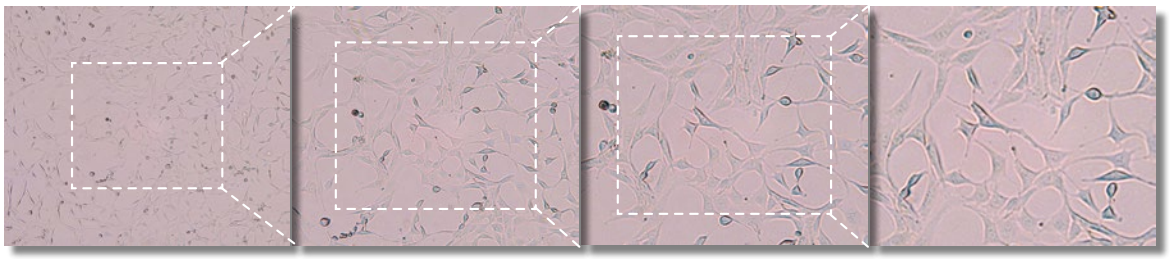
Compatible with fluorescence imaging

The fluorescence imaging system is equipped with a blue LED light source and excitation/absorption filters, enabling imaging of green fluorescence such as GFP. It can be installed inside a CO_2 incubator to perform time-lapse imaging that combines brightfield and fluorescence imaging.

Observation of Fibroblasts

The image below shows NIH3T3 cells captured in live imaging mode using the CytoWatcher II. The area enclosed by the rectangle is displayed at a magnified view using digital zoom.

Conditions
Exposure time: 10 ms
Illumination: White LED light
Container: 10 cm diameter dish

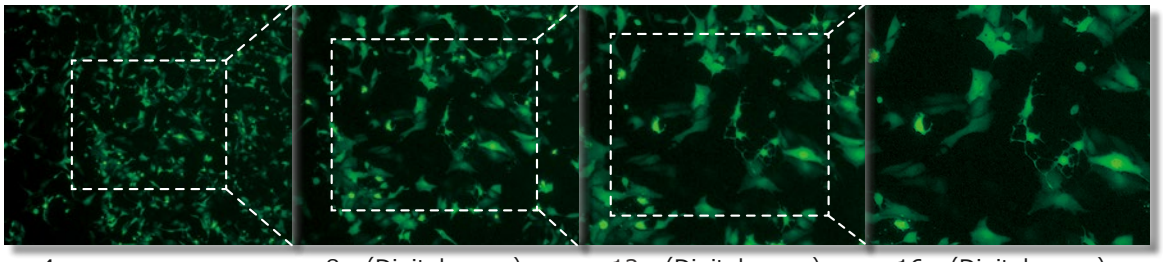


4x　8x（Digital zoom）　12x（Digital zoom）　16x（Digital zoom）

Fluorescence imaging of GFP-expressing cells

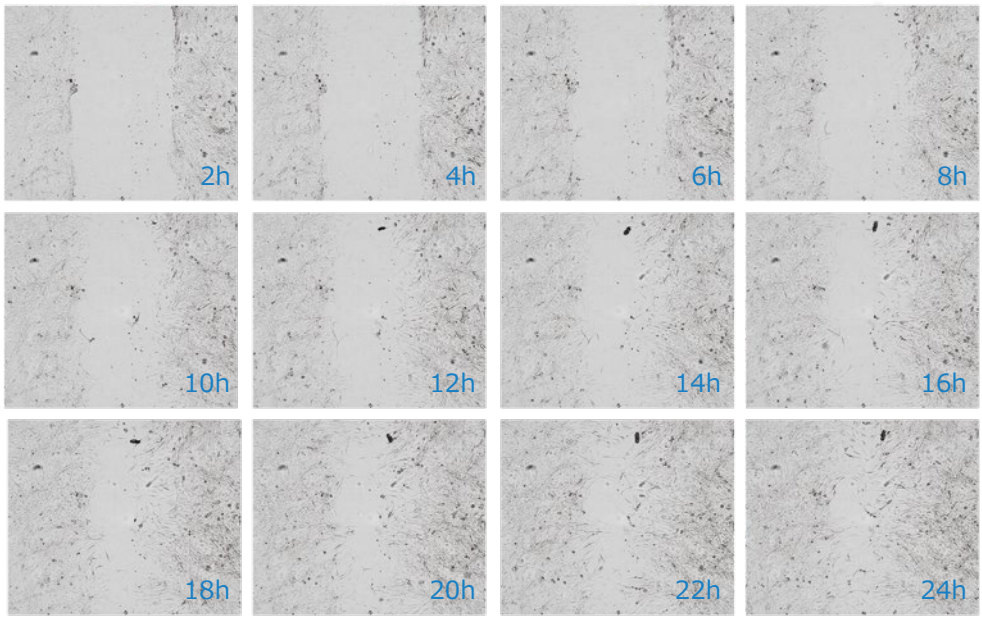
The image below shows NIH3T3 cells 20 hours after the introduction of an EGFP expression vector, captured using the CytoWatcher II FL. The area enclosed by the rectangle is magnified using digital zoom. Additionally, time-lapse images of the same cells were captured 18–30 hours after gene introduction.

Conditions
Exposure time: 1 sec
Interval: 20 min
Duration: 2 days
Lighting: Excitation LED on
Container: 35 mm diameter glass-bottom dish



4x　8x（Digital zoom）　12x（Digital zoom）　16x（Digital zoom）

Wound healing assay



We created scratches (wounds) on Confluent NIH3T3 cells using a micro-needle and captured time-lapse images of the repair process at 10-minute intervals using the CytoWatcher II. The figure on the left shows images taken every two hours. The images reveal the dynamic movement of the cells.

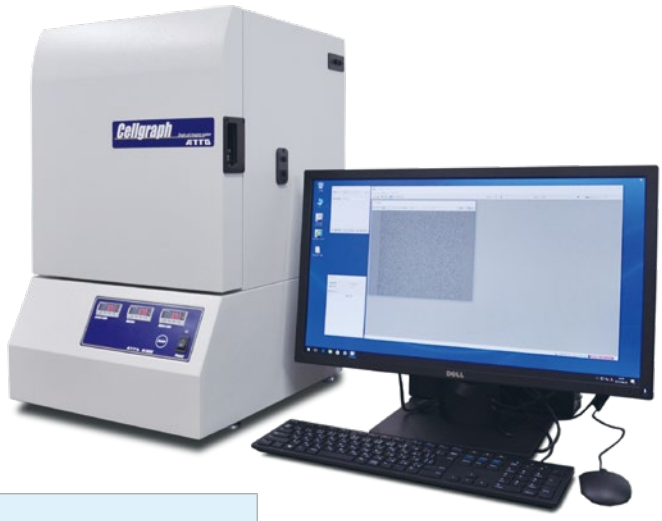
Conditions
Exposure time: 10 ms
Interval: 10 min
Duration: 1 day
Lighting: White LED illumination
Container: 35 mm diameter dish

AB-3000B Cellgraph

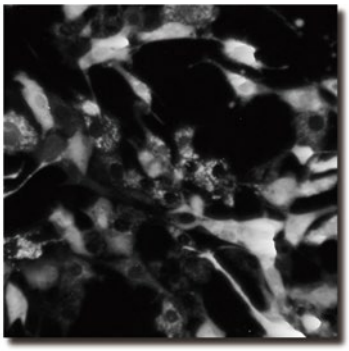
Real-time Imaging and Analysis System for Single-Cell Luminescence

- **We observe gene expression using “low-damage fluorescence” that targets cells and tissues.**
- **We observe “changes in gene expression” while culturing cells and tissues.**

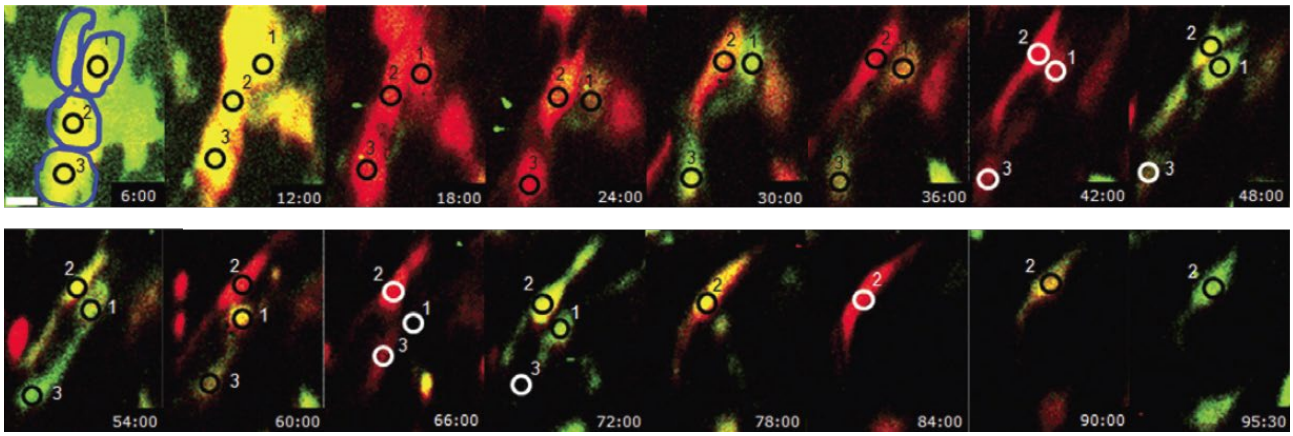
With Cellgraph, you can visualize gene expression within cells as variations in light intensity using a luciferase assay. Cellgraph’s bright objective lens and high-sensitivity cooled EM-CCD camera enable the capture of this extremely faint light. To observe periodic changes, such as those in clock genes, a system capable of observing cells while they are cultured is essential. Since Cellgraph includes a cell culture function, you can observe changes in gene expression over time.
Furthermore, by using a multicolor assay, it is possible to simultaneously observe the expression of two to three different genes in parallel. Since the changes can be saved as video files, you can obtain data that makes it easy to visualize interactions between cells.



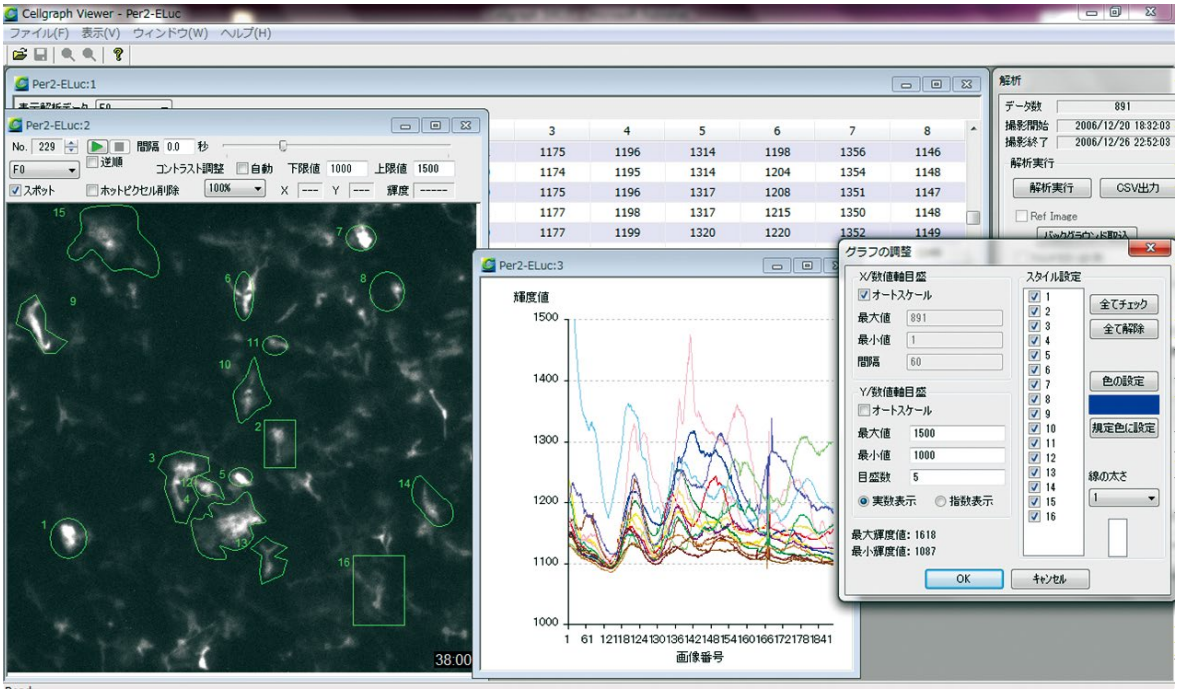
	AB-3000B Cellgraph
Camera	Back-illuminated EM-CCD camera, 512x512 pixels (16x16 μ m) Cooling: -80° C to 100° C (at 25° C ambient temperature; no condensation) (Air-cooled: -80° C / Optional: -90° C (water-cooled at 25° C) / -100° C (water-cooled at 16° C))
Number of sample	1 sample (35 mm culture dish)
Culture conditions	Chamber temperature: Ambient temperature +5° C to 45° C (1° C increments) CO_2 gas injection (optional) Humidification: Internal water tank or humidifying gas injection (optional)
Measurable Reporter	Firefly luciferase, Renilla luciferase, Tripluc luciferase (multicolor luciferase), ELuc (Emerald Luc), and other luminescent proteins
Sample	Cell culture / Tissue culture
Measurement Method	Interval (measures light emission at regular intervals) Measurement time: 30 milliseconds–90 minutes Combination imaging (brightfield + light emission)
Color separation measurement	Separate imaging is possible for up to three colors (three exposures)
OS	Windows 11 (64bit)
Dimensions / Weight	430(W)x600(D)x690(H)mm / 40kg
Power	AC100V-240V 50/60Hz 106VA



Luminescence imaging of organelles



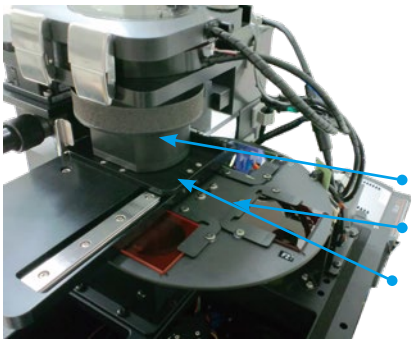
An example of simultaneous imaging of two types of gene expression : AB-3000BD Cellgraph Dual Bioluminescence imaging of dual gene expression at the single-cell level BioTechniques 48(6):460-462 (June 2010)



Spot Measurement: You can choose from four methods for defining the measurement area: circle, rectangle, polygon, and spline (a curved boundary). The system automatically quantifies the luminance of the selected area and generates graphs. Additionally, the luminance analysis data can be exported in CSV format.

Grid Measurement: You can set a grid on the image and perform measurements for each grid cell.
Other Features: You can create time-lapse videos, overlay images, and perform noise reduction.

Cellgraph consists of a main unit and a control PC. Inside the main unit is a sample stage equipped with a culture function, and an inverted imaging unit is built in. Optional accessories such as a CO_2 gas supply unit and a water-cooling unit for the camera can be added.



Code	Product	Quantity
3600000	AB-3000B Cellgraph	1 set
3600110	CO_2 Gas Injection Unit (for Cellgraph)	1
3600112	CO_2 Gas Humidification Unit (for Cellgraph)	1
3600200	Perfusion Culture Chamber Unit (for Cellgraph)	1
3600105	Water-cooling unit for CCD cameras	1

WSL-1565 Kronos HT

Boost research efficiency with multi-sample processing! High-throughput measurement system

- Real-time measurement of live cells across multiple samples
- Cell culture function with temperature and humidity control (CO_2 injection available)
- Compatible with 24- and 96-well microplates
- Long-term measurements ranging from 1 hour to 30 days
- Measurements performed in static culture conditions, as the detector is self-powered
- Low-noise, high-sensitivity detection achieved through detector cooling
- Built-in color separation mechanism compatible with multicolor luciferase

	WSL-1565 Kronos HT
Detector	PMT (10℃ Cooling) x 2　Inverted XY Drive System
Measurement method	Measurement of Faint Light Emission Using the Photon Counting Method
Measurement time	1-60s/well　Interval:1hour - 30days
Measuring Case	Clear bottom plate 24 well (standard) Clear bottom plate 96 well (option)　35mm dish (option)
Number of plate	2 (Measuring two sheets using two detectors)
Number of sample	48 : (24well plate x 2) / 24well plate adaptor (standard) 192 : (96well plate x 2) /96well plate adaptor (option) 12 : (35mm dish x 12) : 35mm dish adaptor (option)
Incubator temperature control	At room temperature (20–28° C), from room temperature +5° C to 45° C (in 0.1 ° C increments)
CO_2 control in culture incubator	Adjust the CO_2 concentration using the CO_2 gas mixing unit and introduce it into the chamber (settable range: 1.0–20%)
Humidification of culture incubator	Place the water-filled container inside the chamber / Introduce 5% CO_2 gas intermittently through the humidification unit Maintain a humidity level of 90% RH or higher
Color separation measurement	Separate measurement of two colors
OS	Windows 11/10 (64/32bit)
PC connection	USB 2.0
Dimensions /Weight	650(W)x520(D)x340(H)mm ・ 40kg
Power	AC100-240V　50/60Hz　320W (Max)

Reference light source for calibration
Kohshi Uni

Kronos HT

Control PC

CO2 Gas Mixing Unit

Humidifier

Kohshi Uni mounting adaptor

This product is the result of a joint development project with the National Institute of Advanced Industrial Science and Technology (AIST) under the Japan Science and Technology Agency' s (JST) A-STEP program.

Code	Product	Quantity
3510140	WSL-1565 KronosHT	1 set
3510146	24well plate adaptor (WSL-1565)	1
3510147	96well plate adaptor (WSL-1565)	1
3510148	35mm dish adaptor (WSL-1565)	1
3510132	CO_2 Gas Supply Kit for KronosHT	1
3510144	Kohshi Uni mounting adaptor (WSL-1565/1563)	1

Option

CO_2 gas mixing unit

Humidifier

	CO_2 Gas Supply Kit for Kronos HT
CO_2 control	Adjust the CO_2 concentration using the CO_2 gas mixing unit and introduce it into the culture tank (set range: 1.0–20%)
Humidification	Introduce CO_2 gas into the Kronos HT culture tank via the humidification unit
Dimensions / Weight	CO_2 gas mixing unit:121(W)x174(D)x157(H)mm・1.6kg Humidifier:170(W)x140(D)x115(H)mm・1.6kg
Power	CO_2 gas mixing unit:AC100-240V 50/60Hz 25W (max) Humidifier:AC100-240V 50/60Hz 30W (max)

Sample Measurement Data

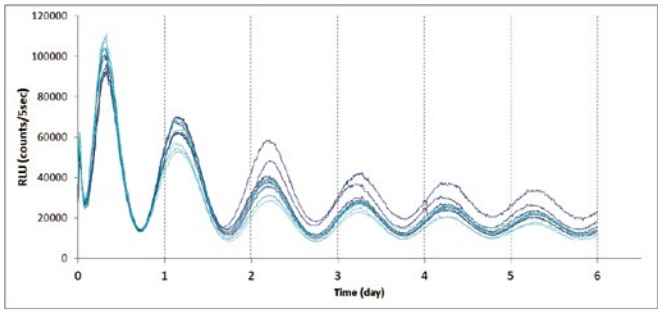
Measurement of the rhythm of clock gene expression

Measured the transcriptional activity of the clock gene mPer2 over a 6-day period

Test sample :

mPer2 promoter-Eluc(PEST)-expressing A9 stable cell line / 24-well clear-bottom plate

The cells were cultured in a 24-well clear-bottom plate, treated with 100 nM dexamethasone in serum-free DMEM for 2 hours to synchronize their circadian rhythm, and then the medium was replaced with a solution containing 0.2 mM luciferin (luminogenic substrate). Luminance was measured using a Kronos HT for 6 days.



Real-time measurement of transcription factor responses to drug stimulation

Induction of the transcription factor NF- κ B by drug stimulation (TNF- α) was measured using a 48-hour dual-color luminescence assay

Test Samples:

A9 stable cell lines expressing the following two types of luciferase / 96-well clear-bottom plates

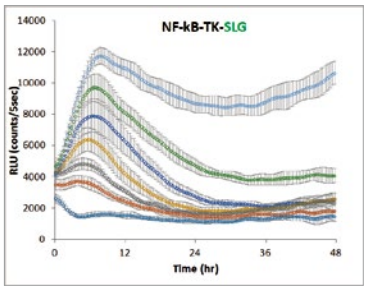
・NF- κ B response element - TK promoter - SLG (green-emitting luciferase)

・TK promoter - SLR (red-emitting luciferase)

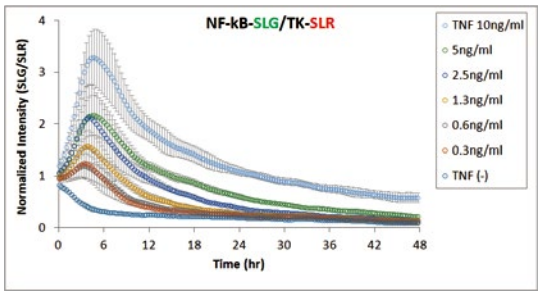
The above cells were cultured in 96-well clear-bottom plates. After adding 0.2 mM luciferin and various concentrations of TNF- α , the two-color luminescence was measured using a Kronos HT for 48 hours to monitor the transcription activity of NF- κ B and the control (Thymidine Kinase) over time (A, B).

The NF- κ B measurements were normalized against the control (TK) measurements (C), and the ratio to the normalized values obtained without TNF- α addition was calculated to determine the time-dependent changes in the induction fold caused by TNF- α addition (D).

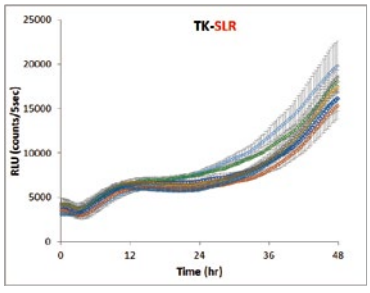
(A)



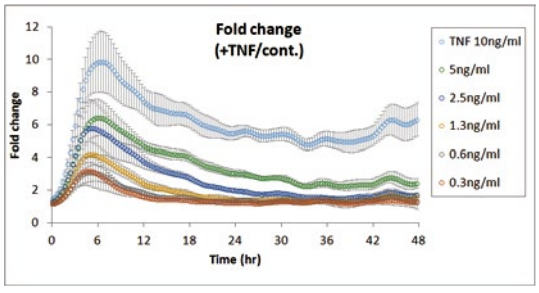
(C)



(B)



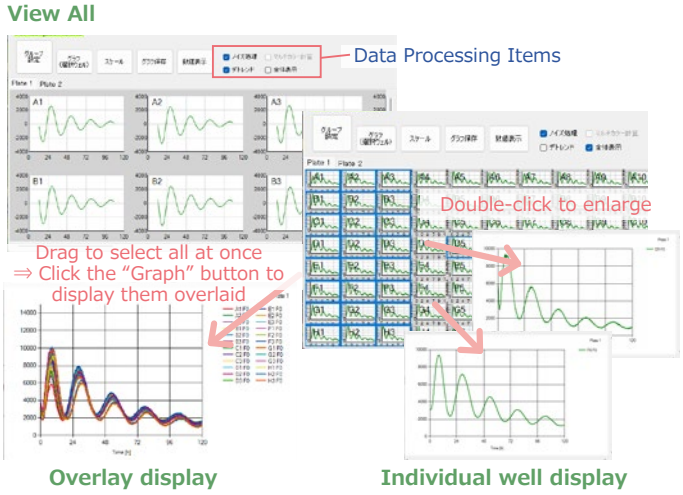
(D)



KronoAnalyzer

Analysis Software for the Kronos Series

- **WSL-1565 KronosHT/AB-2550 Kronos Dio/ AB-2500 Kronos (Discontinued models/ Analysis of measurement data)**
- **Time-series data analysis with simple operation**
- **Period, phase at the peak, amplitude, peak/ trough values**
- **Configurable settings for noise reduction, detrending, and more**
- **Capable of comparing analysis data and performing statistical analysis**



KronoAnalyzer is an analysis software designed for analyzing various types of time-series data, such as circadian rhythms, changes in drug response over time, and cytotoxicity assays. Circadian rhythms are still fresh in our minds as the subject of the 2017 Nobel Prize in Physiology or Medicine. The physiological rhythms of organisms, such as sleep and hormone secretion, are controlled by the periodic expression of specific genes (clock genes). ATTO' s Kronos series (Kronos HT, Kronos Dio) is a system that monitors the expression of these clock genes over time using the luminescence of a reporter gene (luciferase). KronoAnalyzer is software that utilizes time-series data*1 acquired by the Kronos series to extract peak/ trough times and values, and to calculate basic statistical data such as period, acrophase, amplitude*2, as well as mean, standard deviation, and coefficient of variation. In addition to comparing samples within a single file, it is suitable for extracting data from up to three individually acquired files for graph overlay and comparative analysis.

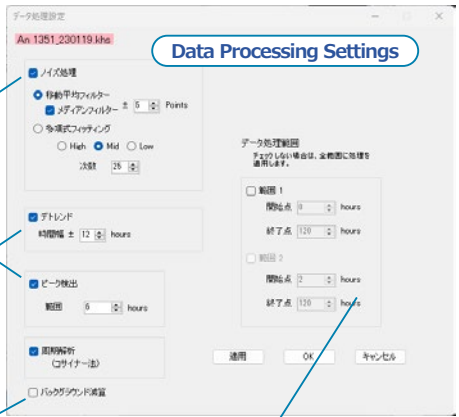
*1. Time-series data: Data consisting of consecutive measurements taken from the same sample.
*2. Period, peak phase, and amplitude are calculated after detrending.

Customize your data analysis with flexible settings

KronoAnalyzer allows you to adjust data processing settings to suit the target organism, phenomenon, or experimental setup, enabling analysis under optimal conditions. Data processing settings include "Noise Reduction," "Detrending," "Peak/Trough Detection," "Data Processing Range," "Periodic Analysis," and "Background Subtraction."

By combining noise filters, you can use a median filter to remove spike noise and a moving average filter to remove fine noise.

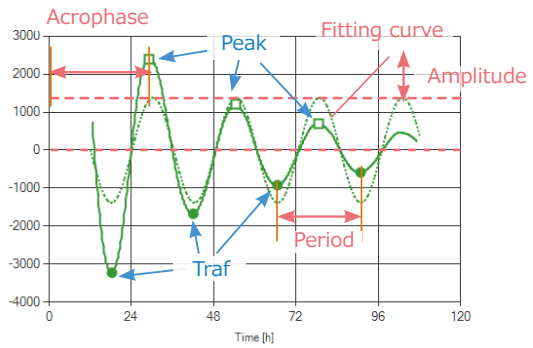
Removes trends within the specified time window based on the experimental setup. Similarly, specify the time window for peak/ trough detection.



You can subtract the background noise value specific to the measurement device.

You can configure the analysis range to exclude unstable data immediately after measurement begins or to exclude periods during which measurement was temporarily paused (e.g., due to drug administration), dividing the data into up to two segments.

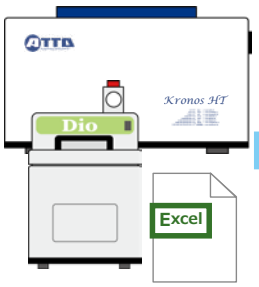
Simple analytical data



KronoAnalyzer processes various types of time-series data optimally and allows you to simultaneously compare and analyze large amounts of data from multiple files. Because the analysis results are simple—consisting of Period, Acrophase, Amplitude, and Peak/Trough values—they are easy to compare.

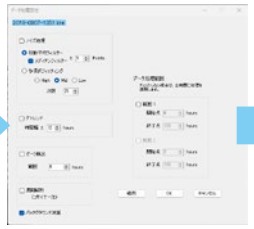
The Process from Measurement to Data Analysis

Data file



- Kronos Series measurement data (kht, dtl formats)
- KronoAnalyzer analysis data (krd format)
- Excel data (Templates available)

Data Processing Settings



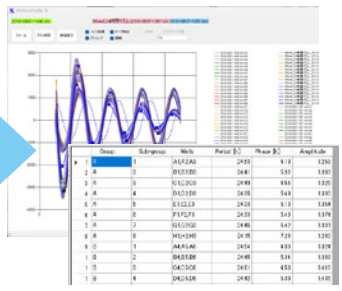
- Noise reduction
- Detrend* settings
- Peak/trough settings
- Period calculation (cosine method)
- Background subtraction
- Data processing range

* A process for extracting rhythms by eliminating the effects of variations not caused by the rhythm

Group Settings

- Layout
- Sample Name
- Number of Samples (n)
- Group
- Subgroup
- Blank Well

Analysis Results



- Peak/Trough Values
- Period
- Amplitude
- Acrophase
- Basic Statistical Data (Mean, Standard Deviation, Coefficient of Variation (CV), etc.)

Specification

	KronoAnalyzer
Supported file formats	・Kronos HT ／ Kronos Dio ／ Kronos measurement data format（.kht / .dtl） ・KronoAnalyzer data format（.krd） ・Excel data format（Templates available） *You can view, compare, and analyze up to three files at a time.
Data display format	【Graph display】 ・List view of all wells (up to 3 files) ・Individual or parallel view of each well (Up to 5 wells per plate; select and display up to 3 files × 2 plates × 5 wells in parallel) ・Overlay view (up to 192 groups (wells) × 3 files) 【Text data display】 ・Time-series data, peaks and troughs, cycles
Data Processing Settings	・Noise processing settings (moving average / median / polynomial fitting) ・Detrending settings (subtraction of specified moving average) ・Background value settings (subtraction of instrument-induced background) ・Blank settings (subtraction of blank wells) ・Multicolor analysis settings (support for multicolor luminescence samples) ・Peak/Trough/Period Calculation Settings ・Graph XY Axis Settings (X-axis: 0–2 × 10 ⁹, Y-axis: 0–999 hours, Full/Auto-scale, Range Specification) ・Data Processing Range Settings (Up to 2 intervals can be set)
Group Configuration Format	・Setting the number of samples (n=1–n=192) ・Subgroup settings (Minimum subgroup: 1 well = 1 subgroup – Maximum subgroup: 192 wells = 1 subgroup) ・Group settings (Minimum group: 1 well = 1 group – Maximum group: 192 wells = 1 group) ・Blank group settings (1 group)
Group Data Analysis	・Basic statistical analysis for each group: Calculation of mean, standard deviation, and coefficient of variation ・Data analysis for each group: Time-series data, peaks/troughs, and cycles ・Overlayed graph display for selected groups and subgroups
Analysis data	【Peak/Trough】 ・Peak/trough values and times ・Peak/trough symbols ・Data sorting (ascending/descending) 【Period Calculation (Cosine Method)】 ・Calculation of period, amplitude, and acrophase (using the cosine method) ・Data sorting (ascending/descending)
Data save	・Saving analysis data (krd) ・Saving graph images (TIFF/JPEG/BMP/PNG) ・Saving data processing and analysis results (Excel/CSV)
Language	Japanese/English (Language switching supported within the software)
OS	Windows11 (64bit)、8 GB of RAM or more; Recommended display resolution: 1,920 x 1,080

Code	Product	Quantity
3510155	KronoAnalyzer	1

AB-2550 KronosDio

Real-time Gene Expression Measurement System with Cell Culture Capabilities

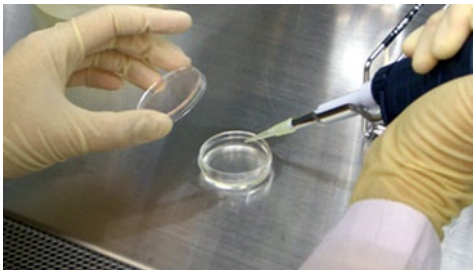
Advances in circadian genetics and chronobiology suggest, for example, “resetting the optimal timing for medication administration”!

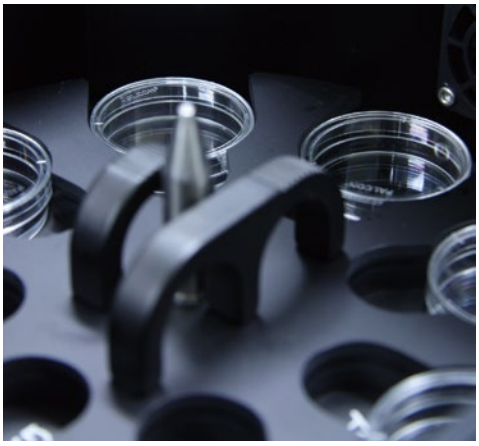
- **Real-time monitoring of gene transcription activity using the luciferase assay**
- **Measuring changes in gene expression, such as responses to stimuli, while culturing cells—leading to a dramatic increase in available data**
- **Enables real-time monitoring of clock gene expression**
- **Information on cellular responses to stimuli for drug discovery and other applications!!**
- **Transcription activity monitoring!!**

The ability to measure gene expression in real time using a luciferase assay provides far more information than conventional methods that involve lysing cells to measure mRNA or proteins. Furthermore, when combined with a multicolor assay method, it becomes possible to measure the expression of multiple genes simultaneously. Using Chronos Dio, it is possible to automatically perform time-course experiments on gene expression in response to stimuli.
The interior of the Chronos Dio unit allows for cell culture incubation (room temperature to 5°C to 45°C), and the included regulator maintains a constant CO_2 concentration of 5%. Luminescence measurements are performed and data is accumulated at regular intervals using a high-sensitivity PMT. Temperature during incubation, CO_2 concentration, and communication status with the PC can also be monitored.

	AB-2550 Kronos Dio
Detector	PMT (Photomultiplier Tube) Wavelength Range: 350–670 nm
Number of sample	8 samples (35 mm culture dishes)
Culture conditions	Internal temperature: Ambient temperature to -5° C to 45° C (in 1° C increments) CO_2 concentration control: 5% (fixed) Humidification: Humidification sponge
Measurable Reporter	Firefly luciferase, Renilla luciferase Tripluc luciferase (multicolor luciferase) ELuc (Emerald Luc) and other luminescent proteins
Sample	Cultured cells, tissue sections
Measurement Method	Interval (measures light intensity at set intervals) Integration time: 1–60 seconds / 1–60 minutes
Color separation measurement	Separate measurements can be taken for up to three colors
OS	Windows 11/10 (64/32bit)
Dimensions / Weight	280(W)x400(D)x330(H)mm ・ 16.0kg
Power	AC100-240V 50/60Hz 75W

Reference light source
Kohshi Uni





Place the cells prepared for the luciferase assay into a 35 mm culture dish, add the luciferase solution, and then place the dish in the Chronos Dio. Luminescence measurements can be performed while the sample is incubating inside the Chronos Dio.
The measured data can be exported in Excel format.

Code	Product	Quantity
3510120	AB-2550 KronosDio	1

AB-2350 Phelios

Luminescence Measurement System for Microtiter Plates

- **Ideal for toxicity testing using cultured cells (as an alternative to laboratory animals)**
- **Compatible with 96- and 384-well microplates**
- **Supports color-separated measurement of multi-color luciferase assay**
- **Equipped with temperature control**

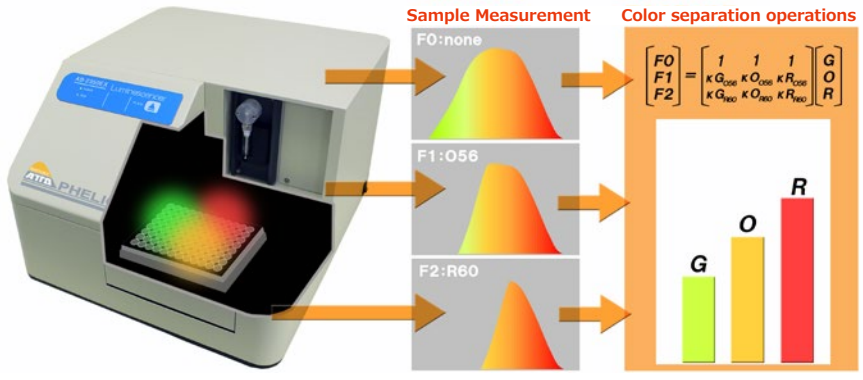
"Felioss" is a luminescence measurement device (luminometer) that uses a PMT (photomultiplier tube) as its detector. It supports "luciferase assays" that measure gene activity based on the expression levels of luminescent proteins, "antioxidant capacity measurements (luminometric method)" that evaluate antioxidants using luminescence, and the "IL-8 Luc assay" (OECD TG442E), an alternative to animal testing for skin sensitization testing. It is equipped with color separation functionality compatible with advanced multicolor luciferase assays (luciferase assays utilizing three-color luciferase for simultaneous measurement of multiple genes).

	AB-2350 Phelios
Detector	PMT (Photomultiplier Tube) Wavelength Range: 350–670 nm
Number of sample	96/384-well plate
Measurement Target	Multicolor Luc (3-color luciferase) Firefly luciferase, CLuc/Gluc secreted luciferase Luminol luminescence, MPEC, XYZ luminescence method, Iquoline luminescence, other luminescence methods
Application	Multicolor Luciferase Assay (3-color separation) Dual Luciferase Assay Reactive oxygen species measurement (luminometric method) Antioxidant capacity measurement (luminometric method) ATP measurement Other luminometric measurement methods
Temperature control function	Room temperature +5° C to 40° C
Dosing pump	1 built-in unit (with the option to add 1 more)
Color separation	Separate measurements can be taken for up to three colors
Control/OS	PC-controlled Windows 11/10 (64/32bit)
Dimension	398(W)x460(D)x286(H)mm
Weight	16.5kg
Power	AC100 50/60Hz 300W

Reference light source
WSL-1200 Kohshi Fundam

Measurement of Tri-color Luciferase (Simultaneous Luminescence)

It features a color-separation mechanism capable of highly sensitive detection of multicolor luciferase (Multicolor Luc) for measuring the expression of multiple genes simultaneously. This mechanism separates the three colors of light emitted simultaneously upon the addition of luciferin. It enables higher-sensitivity detection than methods using conventional bandpass filters, allowing for efficient measurement of faint light emissions.



Code	Product	Quantity
3511140	AB-2350 Phelios	1
3511150	AB-2020 External Pump for Phelios	1

WSL-2300 Phelios AL

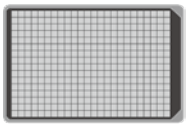
For microtiter plates

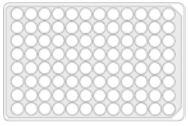
- **Absorbance measurement: Micro-titer plates**
- **Fluorescence measurement: Micro-titer plates**
- **Micro-volume absorbance measurement (optional Nano Volume Plate)**
- **Compatible with 6-, 12-, 24-, 48-, 96-, and 384-well plates**

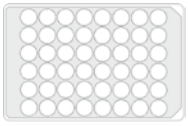
Progress never stops!

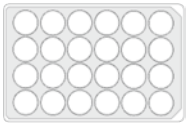
The Phelios AL is a plate reader capable of performing absorbance measurements (200–999 nm), luminescence measurements (300–700 nm), and micro-volume absorbance measurements (240–320 nm). When used with the Nano Volume Plate (optional), it enables micro-volume absorbance measurements starting at 2 μL.

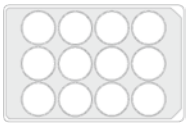
	WSL-2300 Phelios AL
Measurement method	Absorbance measurement: Photodiode Emission measurement: Photomultiplier tube
Measurement Mode	Absorbance measurement: ① Endpoint ② Kinetics ③ Spectral ④ Area scan Luminescence measurement: ① Endpoint ② Kinetics Micro-absorbance measurement: ① Endpoint ② Spectral
Detection sensitivity	Absorbance measurement: 0–4.0 O.D. Luminescence measurement: 10–18 moles of ATP (dynamic range > 8 orders of magnitude)
Measuring container	6 / 12 / 24 / 48 / 96 / 384 well plate Nano Volume Plate (micro-volume absorbance assay): 3x8 (24 samples)
Detector:1	Photodiode / 200–999 nm Light source: Xenon
Detector:2	Photomultiplier Tube / 300–700 nm (Peak at 420 nm)
Wavelength-division multiplexing	Monchromator (1 nm steps)
Stirring function	0-180s (2-speed)
Application	Measurement condition setup, measurement, data storage, and data analysis
OS	Windows 11/10 (64bit)
Dimensions /Weight	335(W)x305(D)x232mm(H)・7.0kg(AC adaptor 0.5kg)
Power	DC24V・40W
AC adaptor	Input : AC100-240V 50/60Hz 140VA Output : DC24V 65W
Components	WSL-2300 Phelios AL x 1,USB cable x 1,AC adaptor+AC cable Support Plate for Luminescence Measurement,USB flash memory(with software),manual

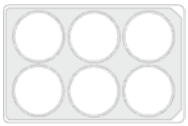

384well plate


96well plate


48well plate


24well plate


12well plate


6well plate

	Nano Volume Plate
Number of sample	24 samples（3x8） Compatible with multichannel pipettes
Sample volume	2 μL -
Detection sensitivity	BSA : 0.1mg/mL dsDNA : 5ng/ μL
Measurement wave-length	240-320nm（2nm step）
Preset mode	dsDNA / RNA / ssDNA / BSA / IgG / Lysozyme 1 Abs at 1cm = 1mg/mL
Dimensions /Weight	118mm（W）x86mm（D）x16mm（H）・240g

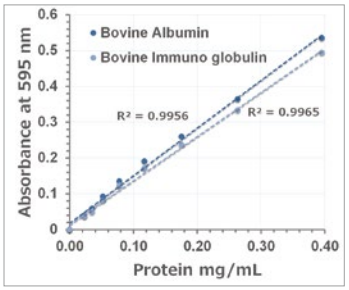
Nano Volume Plate

Code	Product	Quantity
3602300	WSL-2300 Phelios AL	1 set
3602301	WSL-2300P-CP Phelios AL	1 set
3602302	WSL-2300PN-CP Phelios AL	1 set
3602305	Nano Volume Plate (WSL-2300)	1

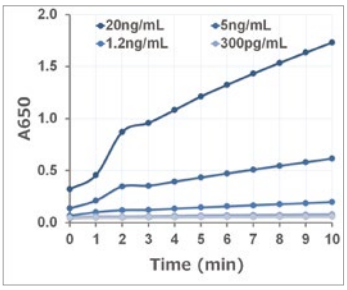
List of Modes by Measurement Method

Method	Mode		Plate
ABS	Endpoint	You can set wavelengths from 1 to 6, and the system will measure the absorbance of the specified wells at each wavelength once. The measured values are displayed as optical density (O.D.).	384/96/48/24/12/6
	Kinetics	Data is measured over time, and the readings for each time point are displayed. Measurements are repeated at set intervals until the specified measurement duration is reached.	
	Spectrum	Measures the absorbance spectrum within a specified wavelength range of 200–999 nm and at a specified wavelength interval (2 nm).	
	Area Scan	Set the scan pattern (3x3 to 13x13 grid) for each well in the microplate, and measure the absorbance for each area within each well.	96/48/24/12/6

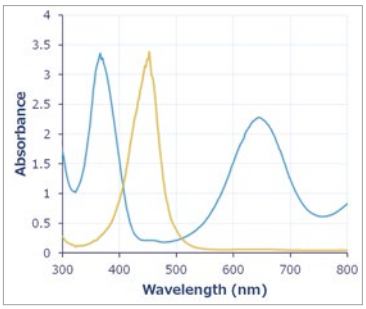
Creating Calibration Curves
You can perform measurements using Phelios AL and create calibration curves using the automatic analysis function. Measurement results can be exported to Excel.



Kinetic Measurement
These are the results of a kinetic measurement of TMB color development via the HRP enzyme reaction using the Phelios AL.

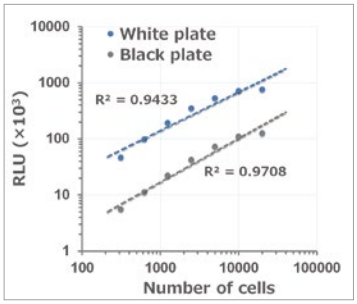


Spectral Measurement
Spectral measurements can be performed within any wavelength range (200–999 nm).



Method	Mode		Plate
LUMI	Endpoint	The system measures the light emission from the specified well once within the set measurement time (10–1000 ms). The result is displayed in relative light units (RLU).	384/96/48/24/12/6
	Kinetics	Data is measured over time, and the readings for each time point are displayed. Measurements are repeated at set intervals until the specified measurement duration is reached.	

The Phelios AL comes standard with a PMT (photomultiplier tube), enabling luminescence measurements.
It minimizes crosstalk, allowing for measurements with low background noise and a wide dynamic range. With a detection limit as high as 1 × 10^(− 18) ATP, it achieves an 8-order-of-magnitude dynamic range.
For luminescence measurements, both “endpoint measurements” and “kinetic measurements” are available.

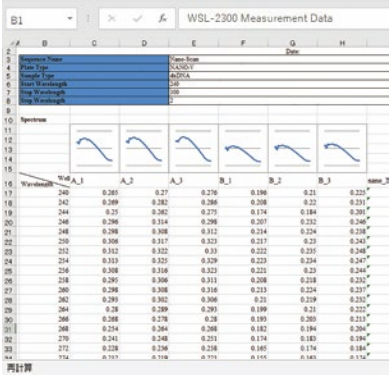


ATP Assay (White vs. Black Plate)
The figure on the left shows the results of culturing HeLa cells in serial dilutions and detecting cell counts using an ATP assay. The white plate yielded a higher signal intensity than the black plate.

Method	Mode		Plate
NANO	Endpoint	Use 2–5 µL of nucleic acid or protein as the sample and measure the absorbance at wavelengths of 260 nm and 280 nm. Then, calculate the 260/280 nm ratio and the sample concentration from the measured values.	Nano Volume Plate
	Spectrum	Use 2–5 µL of nucleic acid or protein as the sample and measure the spectrum at wavelengths of 240–320 nm (in 2-nm intervals).	

Measuring the concentration of DNA, RNA, and protein samples is essential for conducting experiments with high reproducibility. It is important to measure even minute amounts of these valuable samples with high precision. With the Phelios AL, using the optional “Nano Volume Plate” allows for accurate concentration measurements with sample volumes as small as 2 µL. It can measure up to 24 samples, and in Preset Mode, it can automatically measure the purity of DNA and RNA. Measurement results can be exported to Excel, making it ideal for data analysis and management.

Dispense 2 µL of distilled water or sample



WSF-2000MH Fermograph III

Monitoring of Gas Production and Fermentation Status: Multi-Sample Simultaneous Measurement System (10-channel/20-channel)

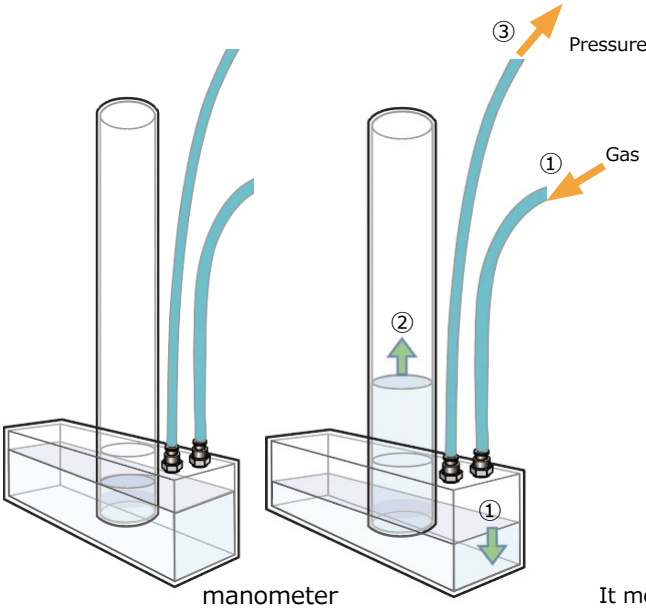
- Automatically measures gas production at regular intervals
- Monitors changes in gas production by microorganisms over time
- Measures gas production during bread dough fermentation (The first-generation model was adopted by the Japan Yeast Industry Association's Bread Yeast Testing Method and received the Minister of Education, Culture, Sports, Science and Technology Award in 2001)
- Monitoring and quality control of fermentation processes in the production of alcoholic beverages such as sake and bioethanol
- Measurement of hydrogen production

Principle

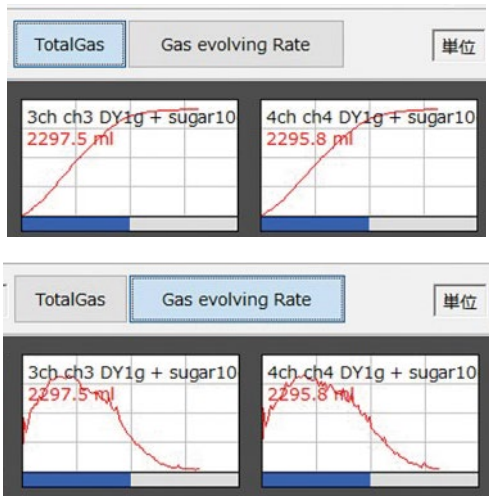
① The generated gas is fed into the manometer.

② This causes the liquid level in the water column to rise. The pressure exerted on the gas inside the manometer corresponds to the height of this liquid level.

③ The pressure sensor in the Fermograph III measures this pressure. The Fermograph III's dedicated software then converts this measurement into a gas volume. An example of a measurement is shown in the figure below on the right.



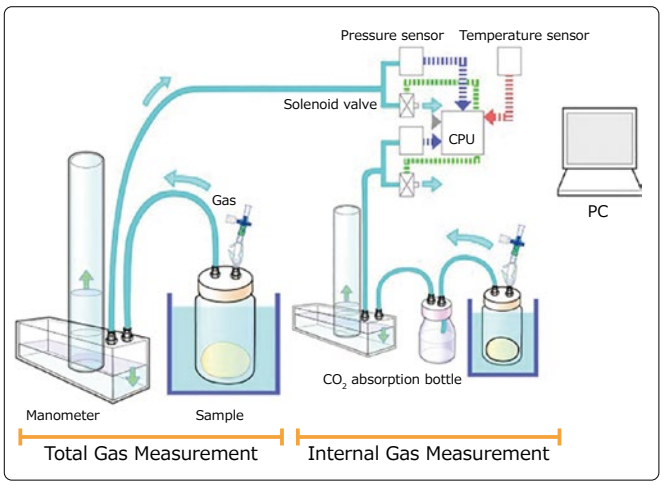
Top figure: Total gas measurement
Bottom figure: Gas generation rate



It measures gas generation rates at intervals ranging from a minimum of 5 seconds to a maximum of 90 minutes, and displays the total gas generation and gas generation rate on a graph.

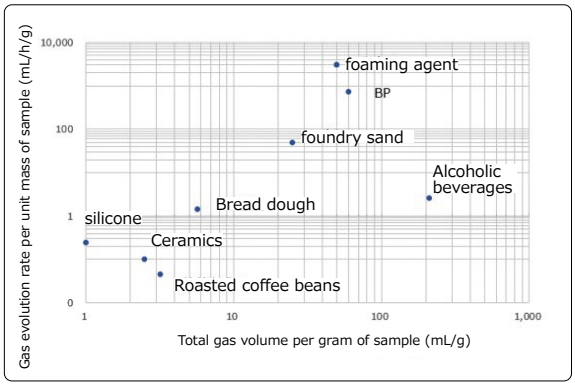
Measurement Examples

To measure the amount of gas produced by bread dough, place the same amount of dough into two sample bottles. By having the CO_2 absorption bottle—attached between one of the sample bottles and the manometer—absorb the gas released externally, you can measure both the total gas volume and the amount of gas within the dough.



Since the system supports measurements at 5-second intervals, it can measure samples that generate gas rapidly, such as baking powder. It also supports long-term measurements, with a maximum measurement duration of 90 days for monitoring fermentation processes in the production of alcoholic beverages like sake and bioethanol.

Reference: Measurement samples and gas generation rates (see figure on the right)



	WSF-2000MH-10W Fermograph III (10ch)	WSF-2000MH-20W Fermograph III (20ch)
Measurement method	Gas-liquid displacement type, pressure detection method (manometer/pressure sensor method)	
Connection method	USB	
Number of sample	1-10 ch	1-20 ch
Measurement interval	5,10,15,30,60 s	
Measurement time	Max 23 hour 59 min or 30 days	
Amount of gas detected	0.2mL-90mL/ch/interval	
Measurement accuracy	±2% (relative to a full scale of 90 mL)	
Sample vial capacity	225mL	
Standard sample size	20 g flour, 30–40 g bread dough	
Measurement Items	Total gas production, gas production per hour, gas content in the dough	
Power	AC100-240V 50/60Hz 36VA	AC100-240V 50/60Hz 72VA
Dimensions /Weight	503mm(W)x152(D)x396(H)mm、10kg	WSF-2000MH-10Wx2式

Code	Product	Quantity
4101170	WSF-2000MH-10W Fermograph III (10ch)	1 set
4101180	WSF-2000MH-20W Fermograph III (20ch)	1 set
4108235	Thermostatic Bath for Farmograph (No Nozzle, with Temperature Controller)	1
4108238	Thermostatic bath for Farmograph (with nozzle, without temperature controller)	1
4108240	CH-302i Cooling and Temperature-Controlled Circulation System	1
4101165	PC System for Fermograph III	1

AB-1850iv LumiFL SpectroCapture

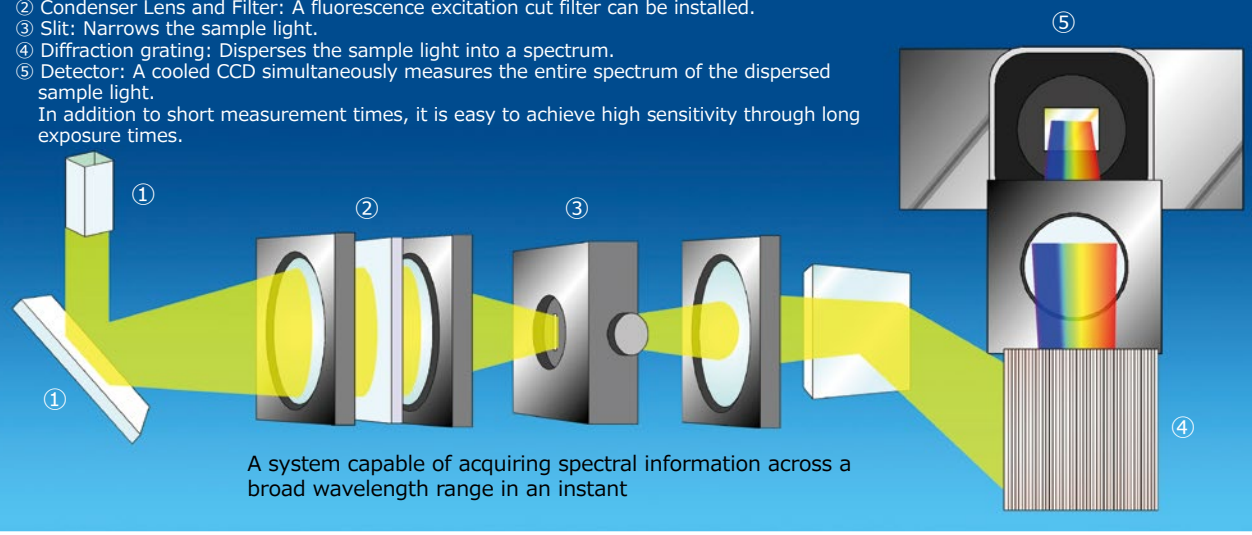
Low-Light Spectral Measurement System

- **A spectrometer capable of simultaneous measurement across the entire wavelength range using a high-sensitivity cooled CCD camera**
- **A measurement method that is less susceptible to the effects of light intensity decline due to simultaneous measurement across a wide wavelength band**

	AB-1850iv LumiFL SpectroCapture
Detector	Cooled CCD, wavelength range: 400–900 nm
Number of sample	1
Spectrometer	Refractive grating (refractive grating line count: 150 lines/mm)
Sample	Luminescence/Fluorescence (Optional)
Measuring container	Quartz cell (10 x 10 mm) PCR tube (0.2 mL) 35 mm culture dish
Measurement Method	Full-spectrum measurement (shutter speed: 1/30 second to 60 minutes)
Software	Measurement Control and Spectral Data Analysis
OS	Windows 11/10 (64/32bit)
Dimensions /Weight	510(W)x725(D)x390(H)mm ・ 58.0kg
Power	AC100V 50/60Hz 290VA

■Utilizes a cooled CCD camera as the detector to simultaneously measure the entire range of wavelengths within the spectral range
■High-sensitivity detection of weak light spectra
■Spectral measurement of luminescence and fluorescence used in the biotechnology field
→Investigation of molecular design for FRET (Fluorescence Resonance Energy Transfer)
→Investigation of molecular design for BRET (Bioluminescence Resonance Energy Transfer)
→Development and quality control of luminescent and fluorescent reagents
→Analysis of fluorescent and luminescent reactions

① Sample Cell: Quartz cells or PCR tubes can be used. For luminescent samples such as cells and proteins.
② Condenser Lens and Filter: A fluorescence excitation cut filter can be installed.
③ Slit: Narrows the sample light.
④ Diffraction grating: Disperses the sample light into a spectrum.
⑤ Detector: A cooled CCD simultaneously measures the entire spectrum of the dispersed sample light.
In addition to short measurement times, it is easy to achieve high sensitivity through long exposure times.



A system capable of acquiring spectral information across a broad wavelength range in an instant

Code	Product	Quantity
3599830	AB-1850-iV LumiFL SpectroCapture	1 set

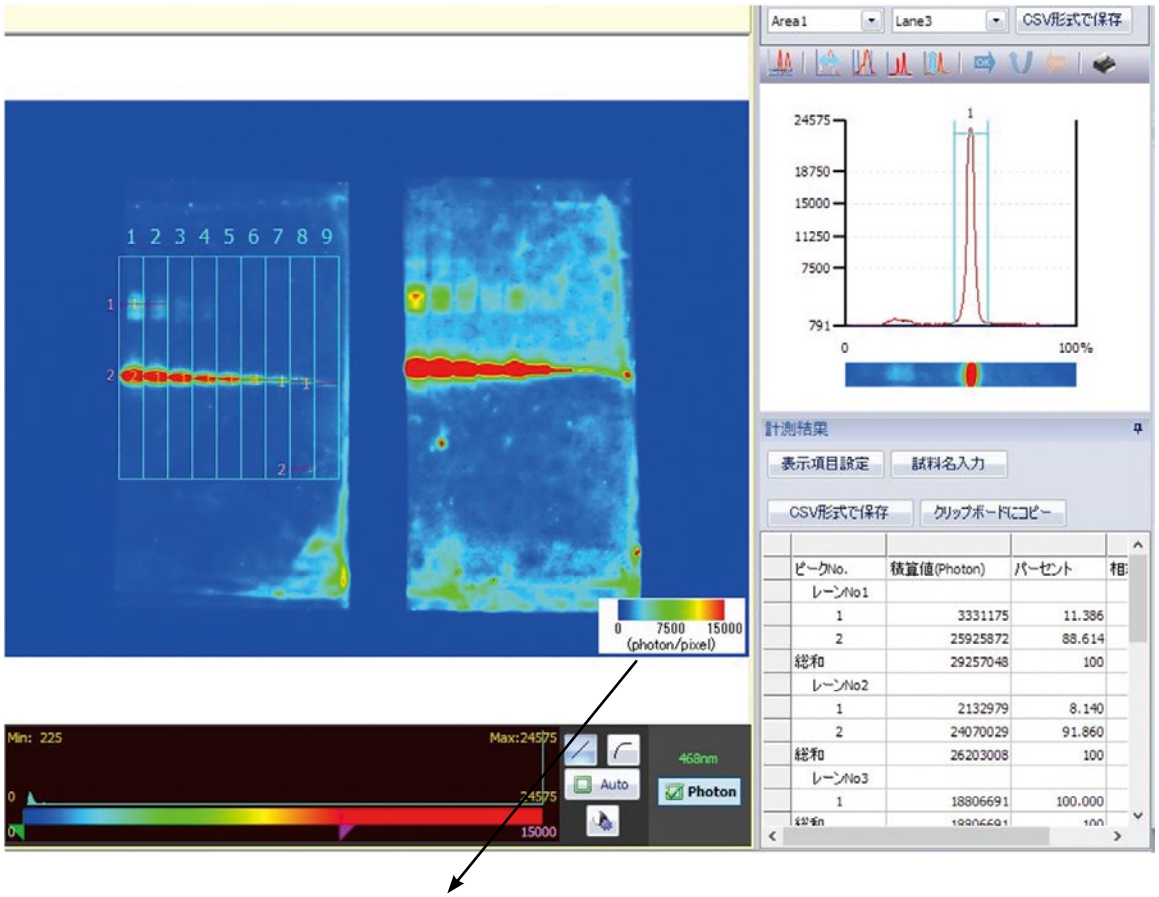
Reference light source Absolute Value Measurement System

(Jointly developed technology by the University of Tokyo and the National Institute of Advanced Industrial Science and Technology)

Page	Category	Product
154	Microplate-type reference light source	WSL-1200C Kohshi Fundam (for CCD) WSL-1200 Kohshi Fundam (for PMT)
155	35mm Petri dish-type reference light source	WSL-1230 Kohshi Uni (for CCD) Series WSL-1235 Kohshi Uni (for PMT) Series WSL-1240 Kohshi Uni (for CCD) Series
157	Absolute Value Measurement System	WSL-2000 SCREMS

Absolute measurement technology using a reference light source

- Applies absolute sensitivity calibration based on photon count rather than relative luminance values to imaging devices
- Automatically calculates the converted absolute sensitivity value when the emission wavelength (measurement wavelength) is selected
- Features a “photon count bar” display function to enhance image reliability
- Switch between photon count and relative luminance display: Select a wavelength and check the “Photon” box to display the photon count



CS Analyzer4: Photon Count Bar Display
By analyzing images converted to photon counts, the accumulated value (measured value) can be displayed as a photon count.

Reference Light Source Series

Reference Light Source Series for Absolute Value Measurement Calibration

Imaging systems using CCD and CMOS cameras are widely used in various fields, while photomultiplier tube-based light detection systems are extensively utilized in biochemistry research. However, there has been no reliable method to verify that the performance of these devices—such as their detection sensitivity—remains unchanged. Under the guidance of the National Institute of Advanced Industrial Science and Technology (AIST) and the Institute for Solid State Physics at the University of Tokyo, ATTO has successfully developed and commercialized an LED reference light source that can be used for absolute sensitivity calibration and periodic sensitivity checks of these devices. To accommodate the sample mounting configurations of various instruments, we have prepared both microplate-type and 35mm petri dish-type light sources. These light sources are available in two light intensity ranges—from extremely low levels of fW to pW, and from nW to μW—allowing users to select the appropriate intensity for their specific applications. Additionally, we have prepared protocols, including methods for absolute sensitivity calibration, to ensure reliable and safe use.

Kohshi Fundam for PMT/CCD

Kohshi Uni 450 for PMT/CCD

Kohshi Uni 25 for CCD

技術提供
産総研

※本製品は、国立研究開発法人 産業技術総合研究所の技術コンサルティングによる成果を活用しています。

We have entered into a technical consulting agreement with the National Institute of Advanced Industrial Science and Technology (AIST) and calibrate ATTO's products—including imaging systems, luminometers, and reference LED light sources—using the institute's internal standard light source (ATTO's in-house standard), which is measured using the integrating sphere spectroradiometer at AIST's National Metrology Institute of Japan.

	Kohshi Fundam for PMT	Kohshi Fundam for CCD	Kohshi Uni 450 for PMT	Kohshi Uni 450 for CCD	Kohshi Uni 25 for CCD
Calibration of Primary Light Sources	◎	◎	◎	◎	◎
Gel Documentation System Printgraph	–	◎	–	○	–
Chemilumi Imager LuminoGraph	○	◎	–	○	–
Luminometer Phelios	◎	–	–	–	–
Real-time Luminometer Kronos Dio	–	–	◎	–	–
Real-time Luminometer Kronos HT	–	–	◎	–	–
Single cell Luminescence Imager Cellgraph	–	–	–	–	◎
Solar Cell Evaluation System SCREMS	–	–	–	◎	–

◎ : Ideal ○ : Supported – : Not supported

WSL-1200 Kohshi Fundam for PMT

Reference Light Source for Fluorescent Plate Readers

WSL-1200C Kohshi Fundam for CCD

Reference Light Source for CCD/CMOS Imaging Systems

- For plate readers: WSL-1200C
- For CCD/CMOS imaging systems: WSL-1200
- Microplate size
- As a reference light source for IQOQ

The WSL-1200/C Kohshi Fundam (KohshiFundam) is a low-intensity reference light source designed for the periodic calibration of optical measurement instruments, similar to how pH meters are calibrated using standard solutions.
Devices such as the Chemilumi Imager, which analyze trace components using bioluminescence or chemiluminescence, rely on this light source to detect minute amounts of light that are invisible to the naked eye. However, checking such highly sensitive instruments on a regular basis requires a light source that emits extremely faint light. With support from the National Institute of Advanced Industrial Science and Technology (AIST), ATTO has commercialized the Kohshi Fundam, a highly stable nW-pW level faint validation reference light source utilizing RGB LEDs.

WSL-1200/C Kohshi Fundam

	WSL-1200 Kohshi Fundam (for PMT)	WSL-1200C Kohshi Fundam (for CCD)
Light source	RGB LED R : 624nm, G: 527nm, B: 470nm	
Light intensity	**Max 10pW/R,G,B** Attached are actual measurement data obtained by comparison with a reference light source	**Max 10nW/R,G,B** Attached are actual measurement data obtained by comparison with a reference light source
Compatible devices	Plate reader for luminescence	CCD/CMOS imager
Light Settings RGB Colors	・1/1 FULL ・OFF ・1/2, 1/4, 1/8, 1/16, 1/32, 1/64, 1/128, 1/256, 1/512, 1/1024 (PWM control)	
Light-emitting section	Aperture diameter: 4 mm (equivalent to E6 position on a microplate)	
Light output stability	±1%	
Ambient temperature	15℃-40℃	
Dimensions / Weight	86mmx128mmx14mm (Same size as the Nunc 96-well titration plate) 190 g (including batteries)	
Battery	CR2032 x 2	

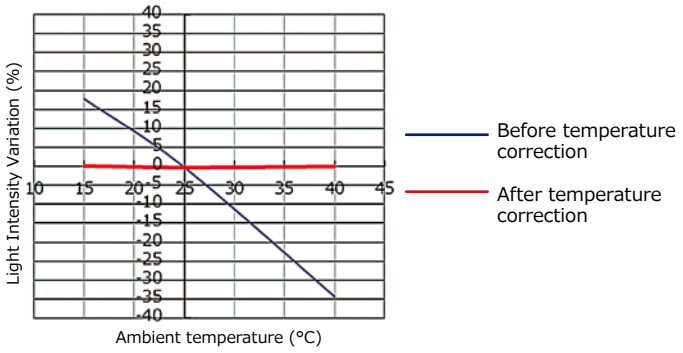
技術提供 産総研

※本製品は、国立研究開発法人 産業技術総合研究所の技術コンサルティングによる成果を活用しています。

We have entered into a technical consulting agreement with the National Institute of Advanced Industrial Science and Technology (AIST) and calibrate ATTO's products—including imaging systems, luminometers, and reference LED light sources—using the institute's internal standard light source (ATTO's in-house standard), which is measured using the integrating sphere spectroradiometer at AIST's National Metrology Institute of Japan.

■ Flexible ON/OFF and brightness settings for each RGB color

With Kohshi Fundam (KohshiFundam) and TRIANT, you can set the light intensity for each color. To check the RGB sensitivity (red, green, and blue sensitivity) of a light measurement device, you can turn on two colors simultaneously to verify the color recognition function.



Code	Product	Quantity
3700005	WSL-1200 Kohshi Fundam (for PMT)	1 set
3700006	WSL-1200C Kohshi Fundam (for CCD)	1 set

WSL-1230 Kohshi Uni 450 for CCD

Reference Light Source for CCD/CMOS Imagers

WSL-1235 Kohshi Uni 450 for PMT

Reference light source for PMT

WSL-1240 Kohshi Uni 25 for CCD

Reference Light Source for CCD/CMOS Microscope Imagers

- For CCD/CMOS imaging systems: WSL-1230/1240
- 35 mm diameter dish
- As a reference light source for IQOQ

We have prepared five colors—470, 530, 630, 640, and 850 nm—using cylindrical reference light sources equipped with LED chips. You can choose between sub-nW to μ W types, suitable for sensitivity checks of CCDs and CMOS sensors, and fW to pW types, suitable for photodetectors using photomultiplier tubes. The outer diameter is the same size as a 35 mm dish. We offer two aperture (emission) diameters: 4.5 mm and 250 μ m. As with the KohshiFundam, we can issue certificates specifying the maximum light output (total radiant flux) during continuous operation in watts (J/s).
This light source is part of the results of the JST Advanced Measurement and Analysis Technology and Instrumentation Development Program.

Kohshi Uni 450　　Kohshi Uni 25

	Kohshi Uni450 for CCD					
Model	WSL-1230-470	WSL-1230-530	WSL-1230-630	WSL-1230-640	WSL-1230-760	WSL-1230-850
Peak wavelength	470nm	530nm	630nm	640nm	760nm	850nm
Total radiant flux	110nW	110nW	110nW	50nW	400nW	400nW
Aperture	**4.5mm**					
Light Intensity Settings	1/1-1/512　10 steps					
Light output stability	± 2%					
Ambient temperature	15-40℃					
Dimensions / Weight	38 mm diameter x 22 mm (H) · 140 g (including batteries)					
Battery	CR1220 x 1					

	Kohshi Uni450 for PMT					
Model	WSL-1235-470	WSL-1235-530	WSL-1235-630	WSL-1235-640	WSL-1235-760	WSL-1235-850
Peak wavelength	470nm	530nm	630nm	640nm	760nm	850nm
Total radiant flux	10pW	10pW	10pW	5pW	40pW	40pW
Aperture	**4.5mm**					
Light Intensity Settings	1/1-1/512　10 steps					
Light output stability	± 2%					
Ambient temperature	15-40℃					
Dimensions / Weight	38 mm diameter x 22 mm (H) · 140 g (including batteries)					
Battery	CR1220 x 1					

	Kohshi Uni25 for CCD					
Model	WSL-1240-470	WSL-1240-530	WSL-1240-630	WSL-1240-640	WSL-1240-760	WSL-1240-850
Peak wavelength	470nm	530nm	630nm	640nm	760nm	850nm
Total radiant flux	300pW	300pW	300pW	200pW	1nW	1nW
Aperture	**250 μ m**					
Light Intensity Settings	1/1-1/512　10 steps					
Light output stability	± 2%					
Ambient temperature	15-40℃					
Dimensions / Weight	38 mm diameter x 22 mm (H) · 140 g (including batteries)					
Battery	CR1220 x 1					

技術提供 産総研

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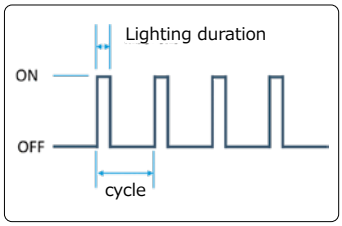
Characteristics of the light source

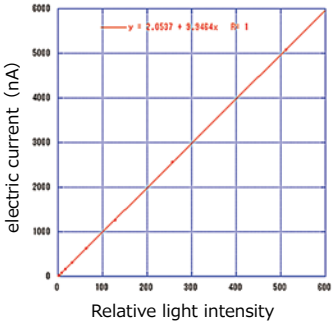
■ Reference light source for fW– μ W-level LEDs

The light intensity suitable for calibrating CCD and CMOS cameras in analytical instruments is extremely low, at a maximum of just a few microwatts (μ W). To evaluate the performance of analytical instruments, it is necessary to be able to linearly vary the light intensity from the maximum level down to 1/512 in steps of 1/2. ATTO' s reference light source enables linear control of light intensity by varying the on-time and its cycle using PWM (Pulse Width Modulation) control. The light intensity required for calibrating and checking the sensitivity of photomultiplier tubes in analytical instruments is even lower, at a maximum of pW, and reaches the fW order of magnitude at the dimmest setting of 1/512.



" Kohshi Uni" Light Intensity Adjustment via PWM Control

KohshiUni adjusts light intensity by varying the ratio of the on-time to the cycle time, while keeping the light source brightness constant. At full brightness, the light is always on; to reduce the intensity to half, the light is on for half of the cycle; to reduce it to a quarter, the light is on for a quarter of the cycle. Both the on-time and the cycle time can be adjusted, and by controlling the current waveform of the on-time using square-wave control, a linear change in light intensity can be guaranteed. This enables the system to meet the requirements for linearity testing of light measurement devices.



" Kohshi Uni" LED Luminous Flux Linearity Test

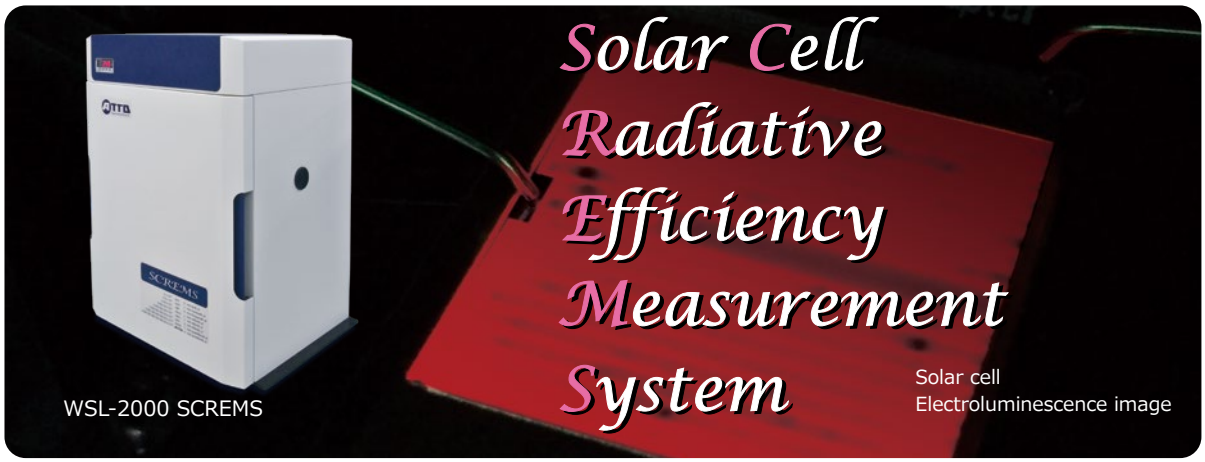
The graph on the left plots the relative light intensity of the LED (horizontal axis) controlled by PWM against the current measured by a photodiode (vertical axis). A good linear relationship between current and light intensity can be observed.

Code	Product	Quantity
3700030	WSL-1230-470 Kohshi Uni450 For CCD (470nm)	1
3700031	WSL-1230-530 Kohshi Uni450 For CCD (530nm)	1
3700032	WSL-1230-630 Kohshi Uni450 For CCD (630nm)	1
3700033	WSL-1230-640 Kohshi Uni450 For CCD (640nm)	1
3700034	WSL-1230-760 Kohshi Uni450 For CCD (760nm)	1
3700035	WSL-1230-850 Kohshi Uni450 For CCD (850nm)	1
3700040	WSL-1235-470 Kohshi Uni450 For PMT (470nm)	1
3700041	WSL-1235-530 Kohshi Uni450 For PMT (530nm)	1
3700042	WSL-1235-630 Kohshi Uni450 For PMT (630nm)	1
3700043	WSL-1235-640 Kohshi Uni450 For PMT (640nm)	1
3700044	WSL-1235-760 Kohshi Uni450 For PMT (760nm)	1
3700045	WSL-1235-850 Kohshi Uni450 For PMT (850nm)	1
3700050	WSL-1240-470 Kohshi Uni25 For CCD (470nm)	1
3700051	WSL-1240-530 Kohshi Uni25 For CCD (530nm)	1
3700052	WSL-1240-630 Kohshi Uni25 For CCD (630nm)	1
3700053	WSL-1240-640 Kohshi Uni25 For CCD (640nm)	1
3700054	WSL-1240-760 Kohshi Uni25 For CCD (760nm)	1
3700055	WSL-1240-850 Kohshi Uni25 For CCD (850nm)	1
3510144	Kohshi Uni mounting adapter (for WSL-1565/1563)	1

WSL-2000 SCREMS

An Absolute Standard for Evaluating Solar Cell' Power Generation Efficiency"

- Captures light-emitting phenomena in solar cells and measures power generation efficiency (W) using absolute value measurement technology
- For evaluating solar cell development
- Imaging system compatible with visible and near-infrared light



Until now, solar cell efficiency has been evaluated using IV characteristics; however, in 2007, Uwe Rau elucidated the relationship between efficiency and electroluminescence (EL), demonstrating that the light-emitting performance of solar cells serves as a useful indicator (Reciprocity Relation). SCREMS is a system designed to effectively utilize this principle by enabling the measurement of EL intensity in terms of photon count. This system features measured relative wavelength sensitivity characteristics. By performing absolute sensitivity calibration at specific wavelengths using a reference light source—a step necessary for photon measurement—it enables the measurement of photons across a wide range of wavelengths. With this absolute sensitivity-calibrated SCREMS, external light-emitting efficiency can be easily measured based on the injection current and the solar cell' s EL intensity (number of photons). Since it can measure wavelengths from the visible range up to 1200 nm, please utilize it for evaluating a variety of solar cells.
This system was developed by our company under a license granted for a patent application filed by Kyoto University.

	WSL-2000 SCREMS
Camera	CMOS camra/1920x1200pixcels/Pixel size 5.86x5.86 um
Lens	F0.95 prime lens (filter diameter 27mm / aperture diameter 10mm)
Filter	Short-pass: 750 nm Long-pass: 750 nm ND filter: 1% transmittance
Exposure time	1/30-90sec
A/D converter	12-bit (4,096 gradations)
I/O	USB 3.0
Control	Software : ImageSaver6 SCREMS (With absolute sensitivity calibration function) WindowsP C: Windows11/10 (64/32bit)
Luminous flux measurement	Software : CS Analyzer 4 (With photon measurement and display functions) WindowsPC : Windows11/10 (64/32bit)
Sample stage	Material: Copper Temperature: 25° C (Peltier temperature control) Compatible solar cell size: 40 x 40 mm (standard) Electrodes = Top surface: 2 terminals (1 terminal is Common) Copper block: Common Power connection connector: BNC (rear panel) Sample suction pump: Included
XYZ stage	Sample stage adjustment: Adjustment range: X: 35 mm, Y: 35 mm, Z: 50 mm
Standard light source	WSL-1230-640 KohshiUni 450 CCD 640nm / 200nW WSL-1230-850 KohshiUni 450 CCD 850nm / 1 μ W
Another	Laser light inlet: Installed on both sides of the cabinet; Interior lighting: White light & near-infrared light
Dimensions / Weight	360mm(W) x280mm(D) x 500mm(H) · 19kg
Power	AC 100V-240V 50/60Hz · 20W

Code	Product	Quantity
3602006	WSL-2000 SCREMS	1 set
3602002	WSL-2000 SCREMS (Sample stage A · CSA4 · PC)	1 set
3602003	WSL-2000 SCREMS (Sample stage B · CSA4 · PC)	1 set

Absolute Sensitivity Calibration of SCREMS Using a Standard Light Source

Until now, the brightness information in imaging system images consisted solely of relative values (luminance values) obtained through A/D conversion; these values had no meaning beyond indicating that higher values corresponded to brighter areas and lower values to darker areas. Under the guidance of the Institute for Solid State Physics at the University of Tokyo and the National Institute of Advanced Industrial Science and Technology (AIST), we have developed a method to display absolute light intensity instead of luminance values, enabling us to present an absolute sensitivity calibration method using a reference light source. By capturing images of a reference light source whose total radiant flux and light distribution characteristics have been measured, SCREMS enables absolute sensitivity calibration based on the captured image and the light source's radiant flux. This calibration makes it possible to easily measure the absolute light flux of solar cells (e.g., photons/pixel/sec). (Patent pending)

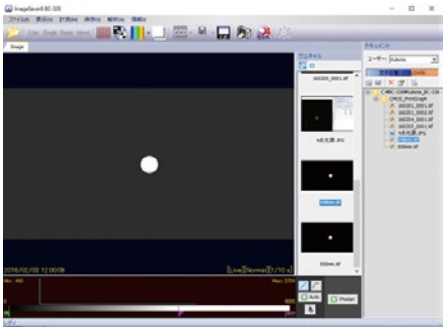
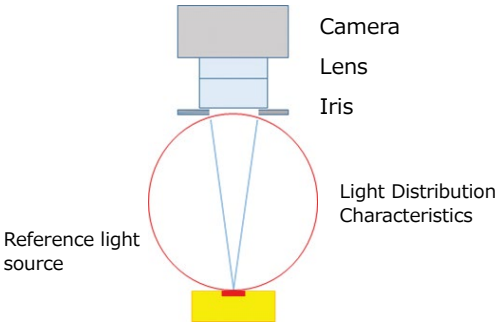
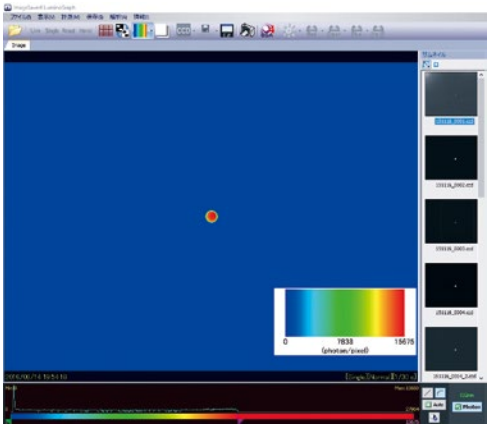


Image captured using an 850 nm reference light source



SCREMS Control Program : ImageSaver6
Image Analysis Program : CS Analyzer 4

ImageSaver6 is image acquisition software that supports the "Photon Luminance" axis, an absolute new contrast metric. When you enable Photon display and select a wavelength, the display switches from luminance to Photon/pixel.
Since Photon information is saved along with the image, you can analyze the light emission as total photon count using CS Analyzer 4.



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1) Hidefumi Akiyama, "Diagnosis and Design of Multi-junction Solar Cells and Evaluation of Absolute Luminous Power and Quantum Efficiency," Applied Physics 84, 319–325 (2015)
2)M.Yoshita, L.Zhu, C.Kim, H.Kubota, T. Nakamura, M. Imaizumi, Y. Kanemitsu and H. Akiyama, "Accuracy Evaluations for Standardization of Multi-Junction Solar-Cell Characterizations via Absolute Electroluminescence" , PVSC43_Manuscript (2016)
3)M. Okano, M. Endo, A. Wakamiya, M. Yoshita, H. Akiyama and Y.Kanemitsu, "Degradation mechanism of perovskite CH3NH3PbI3 diode devices studied by electroluminescence and photoluminescence imaging spectroscopy",Applied Physics Express **8**, 102302 (2015)

Examples of Solar Cell Evaluation

Evaluation of Multi-junction Solar Cells (Cell Size: 20x20 mm)
InGaAs/GaAs/Ge triple-junction solar cell
@ injection current = 20 mA

InGaP subcell (λ_{EL} -680 nm)
Exposure time: 1/10 s

GaAs subcell (λ_{EL} -880 nm)
Exposure time: 1/6 s

Evaluation of single-junction solar cells (Cell size: 20 x 20 mm)
Si (silicon) solar cell @ injection current = 200 mA

Si cell (λ_{EL} -1160 nm)
Exposure time: 5 s

pseudo-color

Photo courtesy of the Institute for Solid State Physics, The University of Tokyo
Prof. Hidefumi Akiyama and Prof. Masahiro Yoshida

$0.1=10^{-1}$	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	μ	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
$0.000\ 000\ 000\ 000\ 000\ 001=10^{-18}$	ATTO	a	one	quintillionth of

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