

### Technical tip

Polyacrylamide gels are formed by the polymerization of acrylamide monomers into long chains. The polymerization of the acrylamide matrix is dependent on the presence of a cross-linker and the generation of free radicals. The most commonly used cross-linker is **N,N'-methylene-bis-acrylamide (Bis)**. Ammonium persulfate (APS) is often used to initiate polymerization because APS generates oxygen free radicals resulting from its' chemical decomposition ( $S_2O_8^{2-}$ ,  $SO_4^{2-}$ ). **N,N,N',N'**-Tetramethylethylenediamine (TEMED), a free radical stabilizer, enhances the gel polymerization rate. The quality and the cross-linking structure of the polyacrylamide used for protein electrophoresis have a direct effect on the quality of high-resolution separations. Thus, the preparation of gels with extremely pure Acrylamide and bis-Acrylamide is essential.

**SDS** (sodium dodecyl sulfate, a detergent) is included for SDS-polyacrylamide gel electrophoresis; it binds to and denatures protein molecules, allowing them to be separated on the basis of their molecular weight alone. It is thus used as one method of determining the molecular weights of isolated protein chains.

### Specifications

#### Acrylamide/Bis-Acrylamide 29:1

a 40% solution containing 38.67% (w/v) acrylamide and 1.33% (w/v) bis-acrylamide. Excellent for many protein electrophoresis applications and can also be used for nucleic acid electrophoresis. Final monomer to cross-linker ratio is 29:1.

**Acrylamide/Bis-Acrylamide 37.5:1 (30:0.8)** a solution of 38.96% (w/v) acrylamide and 1.04% (w/v) bis-acrylamide. Optimized for most protein separations. Final ratio is 37.5:1 (30:0.8).

Protein investigation is constantly expanding into many disciplines of science. From the molecular biologist isolating novel membrane-bound proteins to the physicist trying to predict protein folding, researchers are flocking to protein science. In order to help end users achieve consistent quality results, Interchim offers reagents for many protein applications, especially protein electrophoresis.

### Acrylamides

Acrylamide and bis-Acrylamides are of highest quality to provide high resolution matrix for 1-D, 2-D and IEF separations.

#### Solutions

Our acrylamide solutions are convenient high quality reagents. Compared to home mode solutions

- ◆ Gain of time : ready-to-use
- ◆ Safer : no cancerogenic powder
- ◆ more reproducible : highly controlled

#### Acrylamide/Bis-Acrylamide Solutions (Biotech grade)

Description	Cat.#	Qty
Acrylamide/Bis-Acrylamide 29:1 Solution 40%	UP864927	500 ml
Acrylamide/Bis-Acrylamide 37.5:1 Solution 40%	UP864937	500 ml
Acrylamide Solution 4X-40%	UP873376	500 ml
Bis-Acrylamide Solution 2%	UP864965	500 ml

#### Powders

Acrylamide and bis-Acrylamide powders have a purity of >99.9%, high solubility (allowing more concentrated stock solutions to be prepared), and low conductivity. They are available in 2 grades. Ultrapure grade suit standard applications, while Proteomics grade are certified protease free, and thus dedicated to most demanding proteomics analysis.

#### Ultrapure powders (Biotech grade)

Description	Cat.#	Qty
Acrylamide ultrapure powder	598444	100 g
	598446	500 g
	598447	1 kg
Bis-Acrylamide, Biotech grade	05379E	50 g
	05379G	250 g
Acrylamide/Bis-Acrylamide 29:1 premixed powder	876000	40 g
	876001	200 g
Acrylamide/Bis-Acrylamide 37.5:1 premixed powder	876010	40g
	876011	200g

#### Acryl/Bis™ 37.5:1 (30:0.8)

Ultra Pure Acrylamide and bis-Acrylamide powders blended to achieve a final ratio of 37.5:1. Reconstitute with deionized water, 40 g size has a final volume of 100 ml; 200 g size has a final volume of 500 ml. Reconstitution will produce a 40% (w/v) solution.

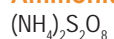
Description	Cat.#	Qty
Acryl/Bis™ 37.5:1 (30:0.8) premixed powder	876013	40 g
Proteomics grade	876014	200 g

### Proteomics grade reagents

Description	Cat.#	Qty
Acrylamide	59844P	100 g
	59844Q	500 g
	59844R	1 kg
Acryl-40™ (40% (W/V) Solution of Ultra Pure Acrylamide)	873378	100 ml
	873379	500 ml
Bis-Acrylamide	05379I	50 g
	05379K	250 g
Bis-2™ (2% Solution of Bis-Acrylamide)	864967	500 ml

### Associated products for polymerization :

#### Ammonium Persulfate



MW : 228.20

ACS Grade

Purity 98.0 %

Titration Free Acid < 0.04 meq/g

Description	Cat.#	Qty
Ammonium Persulfate	UP306098	25 g
Ammonium Persulfate, Proteomics grade	R22880	25 g
	R22881	100 g

#### TEMED

(N,N,N',N'-Tetramethylethylenediamine)



MW : 116.21

Ultra pure grade

Purity (Anhydrous Basis) : 99.0 %

Description	Cat.#	Qty
TEMED	UP15413D	25 ml
TEMED, Proteomics grade	154137	25 ml
	154138	50 ml
	154139	100 ml

### New Electrophoresis X'PRESS Technology (NEXT GEL™)

The newest high-resolution PAGE System for Protein Separation

NEXT GEL™ PAGE is a continuous newly formulated Gel designed for superior protein separations. The X'PRESS Technology offers **full range resolution in a wide range of proteins size**. It is cost-effective alternative to gradient gels, but easier to use and cheaper. Ready-to-use premixed solutions are stable for 6 months and can be kept handy on your bench-top at room temperature. Just add TEMED and APS, mix, pour, insert comb and run gel.

NEXT GEL™ is fully compatible with standard SDS-PAGE applications such as 1D & 2D gels, Western Blot Transfer, Protein Sequencing, MALDI Analysis, and common stain methods.

BENEFITS :

#### Ultra-Fine Resolution :

- ◆ Resolve 14.4 KDa from 14.2 KDa using a 10% NEXT Gel™ mini-gel

#### Save Money :

Cheaper and easier to make than gradient gels

#### Saves Time / Ease-of-Use :

- ◆ Stable for months
- ◆ No stacking gel required
- ◆ Requires less than a minute to pour a gel

#### NEXT Gel™ ready-to-use solutions (5.7.5, 12.5 or 15% acrylamide)

Each package of 500 ml contains reagents for 50 mini and 20 regular gels.

Description	Cat.#	Qty
NEXT Gel™ 5%	GS4270	100 ml
	GS4271	500 ml
NEXT Gel™ 7.5%	GS4280	100 ml
	GS4281	500 ml
NEXT Gel™ 10%	BG6290	100 ml
	BG6291	500 ml
NEXT Gel™ 12.5%	GS4290	100 ml
	GS4291	500 ml
NEXT Gel™ 15%	GS4300	100 ml
	GS4301	500 ml

#### NEXT Gel™ Running Buffer, 20X

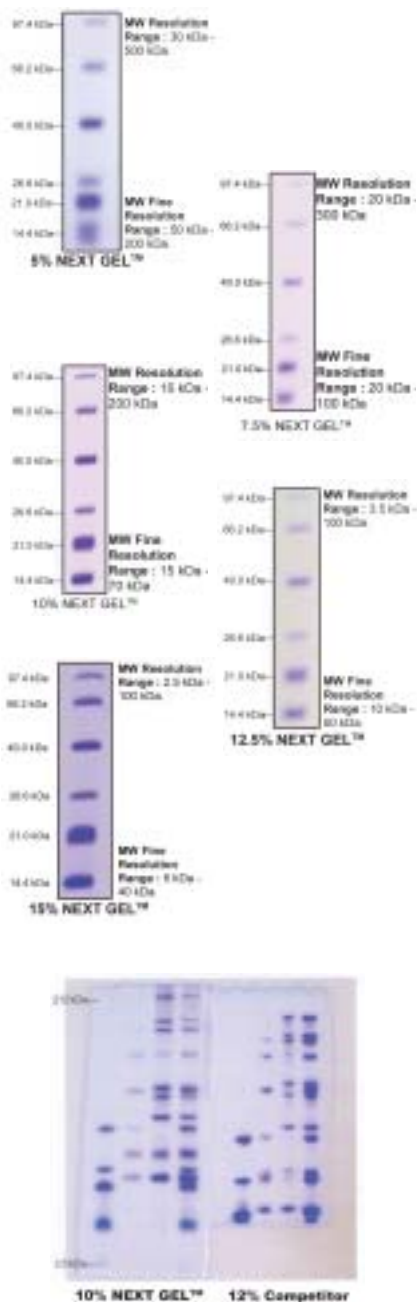
NEXT Gel™ Running Buffer, 20X is a concentrate electrophoresis running buffer optimized for use with our NEXT Gel™ solutions for the preparation and running of proteins. This ready-to-dilute buffer will achieve high resolution on a wide range of protein fragment sizes.

Description	Cat.#	Qty
NEXT Gel™ Running Buffer, 20X	GS4310	100 ml
	GS4311	500 ml

#### Large Protein NEXT GEL™ electrophoresis

A novel system to analyze large molecular weight proteins via horizontal agarose gel electrophoresis.

- ◆ Specifically formulated for separating large MW proteins under denaturing conditions
- ◆ Resolve proteins from 14 000 up to 3 millions Daltons on a single gel
- ◆ Superior protein resolution compared with most commercially available gels
- ◆ Uses readily available horizontal mini submarine agarose gel equipment
- ◆ Compatible with all supporting technology such as western blotting, N-terminal sequencing, MS MALDI, etc
- ◆ Saves time as easy to run as a DNA agarose gel
- ◆ Contains sufficient reagents to perform 35-50 mini gels
- ◆ Stable at room temperature for up to 1 year



Protein MW Markers (Low, Mid/Low, Wide and mixture of all 3) were loaded on a NEXT GEL™ (10%) or a 12% gel from a competitor. Gels were stained with Coomassie® Stain and destained. The NEXT GEL™ shows full range proteins resolved without the need for gradient gels from 212 000 to 3 500 Daltons with unprecedented separation. The competitor gel provided satisfactory separation of proteins from 212 000 to 14 000 Daltons only and with less clarity.

### Protocol

1. Weight out agarose
2. Add water and heat to dissolve
3. Add NEXT GEL buffer to molten agarose
4. Cast gel
5. Add NEXT GEL buffer to tank
6. Load samples
7. Run gel
8. Stain

Description	Cat.#	Qty
LP-NEXT GEL™ (Large Protein Electrophoresis Gel)	<b>BI6150</b>	1kit
Kit includes :		
NEXT GEL™ sample buffer 4X		
NEXT GEL™ running buffer, 20X		
Agarose High Resolution Protein (HRP)		

## RITE™ Pre-cast gels

### RITE-Gels™ 2D (Tris-Glycine)

These two dimensional format gels are pre-cast acrylamide Tris-Glycine gradient mini-gels and are for use in the second stage of a two stage electrophoresis process. The **2D RITE-Gels™** are pre-poured with a 1 mm gel thickness, one molecular weight reference sample lane, and an overall dimension of 10 x 10 cm to fit most vertical electrophoresis systems. The 2D RITE-Gels™ have high resolution and yield consistent reproducible results. The pre-packaged gels are also convenient - requiring no time-consuming preparation. The sensitivity of 2D RITE-Gels™ is extraordinary when used in conjunction with Silver Staining Kit (T08860).

- ◆ Separation Ranges : 6 - 240 KDa.
- ◆ Formats : 10 X 10 cm
- ◆ Available in gradient formats of 8-16% or 10%-20%
- ◆ One reference lane
- ◆ Full gradient across the entire separating gel length
- ◆ Compatible with most current, vertical electrophoresis tanks

Description	Cat.#	Qty
RITE-GELS™ 2D, 10-20% Gradient	<b>R67580</b>	5 gels
RITE-GELS™ 2D, 8-16% Gradient	<b>R67590</b>	5 gels

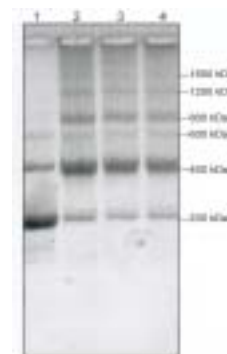
### RITE-Gels™ TG SDS (Tris-Glycine)

RITE-Gels™ TG SDS are polyacrylamide pre-cast gels that permit ultra-high resolution analysis of the full protein and polypeptide molecular weight ranges. These Tris-Glycine based gels offer superior clarity, resolution, and sensitivity.

Use RITE-Gels™ for protein electrophoresis applications and you'll see the highest reproducibility rate you've ever seen. Interchim offers a full range of Tris-Glycine gels, and results can be optimized when used with our buffer and staining products.

- ◆ Separation Ranges : From 5 - 200 KDa.
- ◆ Full gradient across the entire separating gel length.
- ◆ Available in gradient format of 4-20% or straight percentage formulations of 10% & 12%.
- ◆ Twelve (12) sample wells.
- ◆ Compatible with most current, vertical electrophoresis tanks.

Description	Cat.#	Qty
RITE-GELS™ TG-SDS, 4-20% GRADIENT	<b>R45900</b>	5 gels
RITE-GELS™ TG-SDS, 10%	<b>R45910</b>	5 gels



Intermolecular Cross-linking of Myosin Heavy Chain by Glutaraldehyde.  
Samples analyzed by LP-NEXT GEL™ electrophoresis kit using 1% Agarose HRP followed by silver staining. Lane 1 : Myosin (minor bands are aggregates). Lane 2-4 : Myosin cross-linked with Glutaraldehyde for various time intervals.



2D RITE-Gel™ (10-20%) gradient) that contains human leukocyte proteins. Polypeptides were visualized with a modified silver stain protocol.

### GEbAGEL electrophoresis system (runner & pre-cast gels)

**GeBaGel** horizontal electrophoresis system is a revolutionary neutral pH, **horizontal** pre-cast polyacrylamide mini-gel system. GeBaGel system covers two types of gels: protein GeBaGel compatible with Tris-glycine gel, and peptide GeBaGel compatible with Tris-tricine gel. GeBaGel gels contain no SDS, making them ideal for protein analysis under both native and denatured electrophoresis conditions.

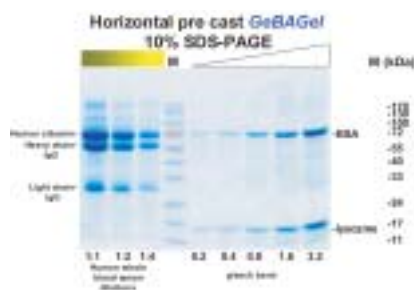
#### Benefits

- ◆ User-friendly protein electrophoresis system.
- ◆ Easy-to-use and cost-effective horizontal **GeBaRunner** apparatus.
- ◆ No more cumbersome assembly of the gel with the running apparatus.
- ◆ No adaptors required.
- ◆ No special loading tips needed, agarose standard-loading tips used.
- ◆ No leakage of running buffer from inner tank to the outer tank.
- ◆ Running buffer saving, **use 150 ml only**.
- ◆ The same standard Tris-glycine running buffer for both **GeBaGels**.
- ◆ 60 minute run time.
- ◆ Standard membrane transfer buffer.
- ◆ Sharper bands provide clear accurate results.
- ◆ Reinforced sample wells eliminate damage when removing the comb and loading.
- ◆ Robust sample well dividers don't deform or fall over.
- ◆ Elimination of sample wells cross contamination.
- ◆ Effortless cassette opening.
- ◆ 12-months shelf-life guarantee.



GeBa electrophoresis runner unit.

Running performances	GeBaGels
Separation Running Time	Max 60 min
Pre-run Time	10 min
Total Running Time	Max 70 min
Protein Bands Appearance	Very sharp
Shelf life	1 year



#### GeBaGel Specifications

Gel Matrix	Acrylamide/Bis-Acrylamide
Gel Thickness	1.5 mm
Gel Size	8 cm x 7.5 cm (H X W)
Cassette Size	11.5 cm x 8.4 cm x 0.7 cm
Sample well configuration	10 wells
Sample well volume	up to 36µl
Stacking Gel	4%
Buffer System in Gel	Tris-HCl
SDS	None
Running Buffer	Tris-Glycine-SDS
Sample Buffer	Tris-HCl-SDS

#### Gebagel pack contents :

8 GeBaGels  
 43 mg of 30X GeBa Reducing Agent (BM779A)  
 0.25/1 ml of 3X GeBa Sample Buffer (BM779B)

Product	Comb color	Unit	Cat.#
10% Protein GeBaGel /Proteins	Blue	8	BI9690
12% Protein GeBaGel /Proteins	Green	8	BI9700
4-12% Protein GeBaGel /Proteins	Violet	8	BI9710
8-16% Protein GeBaGel /Proteins	Red	8	BI9720
17% Protein GeBaGel /Peptides	Black	8	BI9730
GEBARUNNER		1	BI9740

### Molecular size markers

Molecular Weight Markers are essential tools for determining the apparent molecular weight (MW) of protein samples by SDS-PAGE. Interchim provides wide protein markers to accommodate a wide array of fragment ranges. Each marker is a mixture of purified proteins, and all markers provide bands of equal intensity upon staining.

#### Low Range protein MW marker

Low Range protein MW marker is suited for size determination in the range of 3-30 KDa. This is excellent for separating low molecular weight proteins and polypeptides. Low Range protein MW marker has 6 protein bands of 31, 20.4, 16.9, 14.4, 6.1, 3.5KDa.

Description	Cat.#	Qty
Low Range protein MW marker 31-3.5kDa	587231	200 µl/40 tests

#### Precise Protein Molecular Weight Marker

Precise Protein MW Marker has 7 protein bands of 15, 25, 35, 50, 75, 100, and 150 KDa to provide an exact, ladder-like, banding pattern for the most accurate molecular weight determination of unknown protein samples. The marker contains 400 µg of protein (50 µg per band with a 2X reference band of 100 µg at 50 KDa). Absent of oligosaccharides, this marker does not produce "fuzzy-bands" due to aberrant migration. Precise Marker is an ideal standard suited for SDS-PAGE, and is also perfect for Western blotting because each protein contains an S-Tag peptide for direct detection by S-protein Alkaline Phosphatase (AP) conjugate or S-protein Horseradish Peroxidase (HRP) conjugate.

Description	Cat.#	Qty
Precise Molecular Weight standard (7 bands 15.0 – 150 KDa)	N14020	200 µl/40 tests

#### Wide Range Molecular Weight Marker

Wide Range Protein MW Marker is a convenient, premixed marker for use by researchers in protein estimation. It is made up of 8 highly purified proteins of known molecular weights (Lysozyme, Trypsin Inhibitor, Carbonic Anhydrase, Ovalbumin, BSA, Phosphorylase B, β-Galactosidase, and Myosin) and is appropriated for both High and Low MW applications. The Protein MW Marker, Wide Range is molecular weight standards used to establish the apparent molecular weights of proteins run on Sodium Dodecyl Sulfate (SDS) polyacrylamide gels during the denaturing gel electrophoresis process.

It comes as a ready-to-load premixed solution and covers a MW Range of 14 – 212 KDa and produces 8 distinct bands when run. Just one marker will produce multiple percentage gel separations. It is supplied in a denaturing/reducing buffer and comes packaged in a sterile screw-cap vial.

Description	Cat.#	Qty
Wide Range Molecular Weight standard (8 bands 14.0–212 kDa)	BB7080	500 µl/100-150 tests



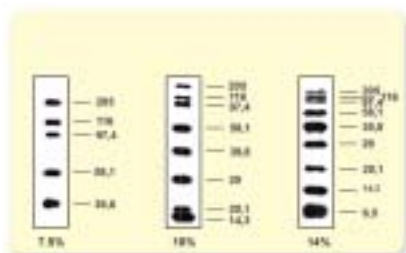
Precise™ Protein MW Marker was separated on a 4-20% RITE-Gel™ Gradient Gel stained with Coomassie Brilliant Blue.



Wide Range Protein MW Marker run on a 12% Acryl/Bis™ 37.5:1 (30:0.8) gel and stained with Coomassie® Brilliant Blue R-250.

# Biochemistry & Molecular Biology Analysis

## Protein electrophoresis



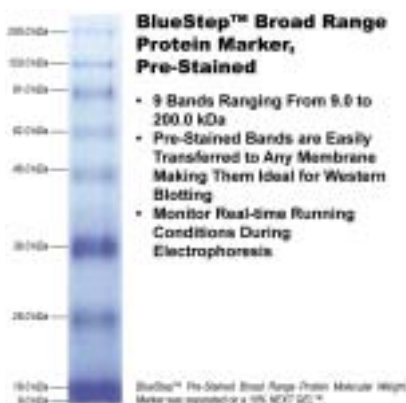
Molecular weight marker on  $\beta$ ,  $\beta$  and  $\beta$  acrylamide gels.



### BlueStep™ Low Range Protein Marker, Pre-Stained

- 6 Bands Ranging From 19.0 to 120.0 kDa
- Pre-Stained Bands are Easily Transferred to Any Membrane Making Them Ideal for Western Blotting
- Monitor Real-time Running Conditions During Electrophoresis

BlueStep™ Pre-Stained Low Range Protein Marker was separated on a 15% SDS-PAGE.



### BlueStep™ Broad Range Protein Marker, Pre-Stained

- 9 Bands Ranging From 9.0 to 200.0 kDa
- Pre-Stained Bands are Easily Transferred to Any Membrane Making Them Ideal for Western Blotting
- Monitor Real-time Running Conditions During Electrophoresis

BlueStep™ Pre-Stained Broad Range Protein Molecular Weight Marker was separated on a 15% SDS-PAGE.



### BlueStep™ High Range Protein Marker, Pre-Stained

- 5 Bands Ranging From 34.0 to 200.0 kDa
- Pre-Stained Bands are Easily Transferred to Any Membrane Making Them Ideal for Western Blotting
- Monitor Real-time Running Conditions During Electrophoresis

BlueStep™ Pre-Stained High Range Protein Molecular Weight Marker was separated on a 15% SDS-PAGE.

### Biotinylated Protein molecular weight markers (MW 6 500 – 205 000) for ECL

- ◆ Determination of proteins molecular weight by SDS-PAGE blotting with chemiluminescence revelation.
- ◆ Two blue stained proteins visualize the transfer efficiency
- ◆ Ready-to-use : add 5-10  $\mu$ l/well

Description	Cat.#	Qty
Biotinylated Protein molecular weight markers (MW 6 500 – 205 000)	UP344440	20 lanes

Includes :

Reagent 1 : biotinylated proteins (200  $\mu$ l)

Reagent 2 : Peroxidase conjugated Streptavidin (200  $\mu$ l)

Quantity sufficient for 20 western Blots detections

Reagent 1 is a ready-to-use mixture of defined proteins. 2 additional blue-stained proteins are included to allow a direct visualization of the transfer of proteins from the gel to the blot. It is loaded on to gel (5-10  $\mu$ l per well in 16 cm<sup>2</sup> gels and 5  $\mu$ l per well in mini gels ) for electrophoresis separation, then transferred to nitrocellulose sheets.

Reagent 2 is added to the secondary antibody during the immunodetection steps. After final washes, the blot is detected by chemiluminescence (UptiLight BM6941).

Protein marker	KDa
a2-Macroglobuline (Human Plasma)	205.0
b-Galactosidase (E. Coli)	116.0
Phosphorylase B (Rabbit Muscle)	97.4
Catalase (Bovine Lung)	58.1
Alcool Dehydrogenase (Horse liver)	39.8
Anhydrase carbonique (Bovine Erythrocytes)	29.0
Trypsin Inhibitor (Soja)	20.1
Lysozyme (Yolk egg)	14.3
Aprotinin (Bovine)	6.5
Blue colored dyes	ca 34 kda

### BlueStep Protein Markers

BlueStep line consists of ready-to-use, pre-stained protein molecular weight markers (in low, broad, and high range). The colored bands markers provided are easily transferable to any membrane, making them ideal for Western blotting. This visible separation also makes the markers useful for monitoring real-time run conditions during electrophoresis.

- ◆ Allows the real-time monitoring of electrophoresis conditions
- ◆ Offers dual color visualization
- ◆ Comes ready-to-use
- ◆ Contains sufficient material for approximately 50 mini gel lanes

Applications :

- ◆ Western blotting
- ◆ SDS-PAGE

Description	Cat.#	Qty
BlueStep Protein Markers low range	BI9960	500 $\mu$ l
BlueStep Protein Markers broad range	BI9970	500 $\mu$ l
BlueStep Protein Markers high range	BI9980	500 $\mu$ l

### Electrophoresis buffer

#### TRIS Buffers

One of the most common electrophoresis buffers for protein separations is Tris-Glycine (TG). Interchim provides TG with or without SDS. In addition to these buffers, Tris-Tricine (TT)/Tris-Tricine-SDS (TT-SDS) Buffers are proposed for both non-denaturing and denaturing electrophoresis of proteins. All are made from high quality chemicals under highly controlled procedures.

#### TG Buffer Powder and Ready-Pack™

TG is available in Biotech grade for standard use, and Proteomics grade for most demanding analysis, as powder packs that makes 40L or smaller quantities, of TG-SDS 1X (0.025 M Tris base, 0.192 M Glycine), and as convenient Ready-Packs that makes 1L of 10X or 10L of 1X TG-SDS.

Description	Cat.#	Qty
TG Buffer, Biotech grade	914940	1 pack (40L 1X)
TG Buffer, Proteomics grade	914941	1 pack (40L 1X)
TG Buffer, Biotech grade (Ready-Pack)	914942	2 Ready-Pack (2 x 10L 1X)
TG Buffer, Proteomics grade (Ready-Pack)	914943	2 Ready-Pack (2 x 10L 1X)
TG Buffer, 10X Liquid Concentrate	914930	4 L (40L 1X)

#### TG-SDS Buffer Powder and Ready-Pack™ and 10X liquid concentrate

TG-SDS is available in Biotech grade for standard use, and Proteomics grade for most demanding analysis, as powder packs that makes 40L, or smaller quantities, of TG-SDS 1X (0.025 M Tris, 0.192 M Glycine, and 0.1% SDS). 10X concentrate solution convenient Ready-Packs makes 1L of 10X or 10L of 1X TG-SDS.

Description	Cat.#	Qty
TG-SDS Buffer, Biotech grade	865980	1 pack (40L 1X)
TG-SDS Buffer, Proteomics grade	865988	1 pack (40L 1X)
TG-SDS Buffer, biotech grade (Ready-Pack)	865985	2 Ready-Pack (2 x 10L 1X)
TG-SDS Buffer, Proteomics grade (Ready-Pack)	865989	2 Ready-Pack (2 x 10L 1X)
TG-SDS Buffer, Biotech grade, 10X	914959	1 L (10L 1X)
	914950	4 L (40L 1X)
TG-SDS Buffer, Proteomics grade, 10X	91495C	1L (10L 1X)
	91495B	4 L (25L 1X)
TG-SDS Buffer, 5X Liquid Concentrate	N13730	500 ml

#### Stacking separating gel 4X buffers

For use in the preparation of polyacrylamide gels for protein electrophoresis.

Description	Cat.#	Qty
Separating gel 4x buffer	R67680	500 ml
Stacking gel 4x buffer	R67690	500 ml

#### TRIS-TRICINE Buffer Ready-Packs™ and 10X Liquid Concentrate

A single pack powder and 1L concentrate prepare 1 L of 10X or 10L of 1X Tris Tricine Buffer (0.1 M tris base, 0.1 M Tricine)

Description	Cat.#	Qty
TT Buffer, Biotech grade	N13460	1 Ready-Pack (10L 1X)
TT Buffer, Proteomics grade	N13461	1 Ready-Pack (10L 1X)
TT Buffer, Biotech grade, 10X	989380	1 L (10L 1X)
TT Buffer, Proteomics grade, 10X	989381	1 L (10L 1X)

TRIS-TRICINE-SDS Buffer Ready-Packs™ and Liquid Concentrate a single Ready-Pack prepares 1 L of 10X or 10L of 1X Tris-Tricine-SDS

1X TrisTricine SDS (M) : 0.1 M Tris Base, 0.1 M Tricine, 0.18 (W/V) SDS

Description	Cat.#	Qty
TT-SDS Buffer, Biotech grade	N13450	1 Ready-Pack (10L 1X)
TT-SDS Buffer, Proteomics grade	N13451	1 ReadyPack (10L 1X)
TT-SDS Buffer, Biotech grade, 10X	764110	1 L (10L 1X)
TT-SDS Buffer, Proteomics grade, 10X	764111	1 L (10L 1X)

#### Technical tip

##### Tris-Glycine & Tris-Glycine-SDS Buffers

The use of Tris-Glycine (TG) buffer for electrophoresis was demonstrated by Laemmli in 1970. Since its introduction, TG and TG-SDS have become the most popular and convenient buffers for use in native and denaturing polyacrylamide gel electrophoresis of proteins. The versatility of TG or TG-SDS buffer enables the accurate separation of proteins in the range of 5 to 500 KDa.

##### Tris-Tricine & Tris-Tricine-SDS Buffer

Tris-Tricine (TT) Buffer, developed by Schaeffer and von Jagow in 1987, replaces Glycine with Tricine for use in standard TG and TG-SDS buffer systems. Well suited for excellent resolution of low molecular weight proteins & peptides, TT and TT-SDS buffers stack and resolve smaller molecules with greater efficiency than TG buffers. Separation of proteins smaller than 10 KDa can be performed in lower percentage gels to yield sharper banding patterns.

## Protein electrophoresis

Sodium Dodecyl Sulfate is a critical reagent in many molecular biology applications. It is widely known that the purity and C12 content dramatically affect the performance of this detergent. For example, contaminating levels of C16-alkyl sulfate particularly affect protein renaturation, and contaminating UV absorbing materials affect detection sensitivity. Additionally, heavy metals/chloride contaminants affect separation and enzymatic activities.

### SDS (Sodium Dodecyl Sulfate)

SDS Biotech Grade SDS is especially high in both purity and C12 content. This nuclease and protease free material ideally suits nucleic acid purification, hybridization cocktails, electrophoresis, wash buffers and protein studies.

Sodium Dodecyl Sulfate

Purity > 99.0%

DNase, RNase, Protease free

OD 260 and OD 280 (3% solution in water) > 0.1

Description	Cat.#	Qty
SDS powder, Biotech grade	UP649100	500 g
SDS powder, Proteomics grade	GS3750	100 g
	GS3751	250 g
	GS3752	500 g
	GS3753	1 kg
SDS, 20% solution, Biotech grade	UP896826	500 ml
SDS, 20% solution, Proteomics grade	89682A	200 ml
	89682B	500 ml
SDS, 10 % solution, Proteomics grade	GS3770	100ml

### IEF Buffers

The Isoelectric Focusing (IEF) buffers are ready-to-use concentrates that provide consistent results from run to run. Our conveniently packaged 20X IEF buffer also means that there are more products, but it takes up less shelf space.

#### IEF Anode Buffer, 20X

Description	Cat.#	Qty
IEF Anode Buffer, 20X	GS4140	250 ml
	GS4141	4 x 250 ml
IEF Cathode Buffer, 20X	GS4240	250 ml
	GS4241	4 x 250 ml

### Buffers components

Description	Cat.#	Qty
BES, Free acid, Proteomics grade	BA7850	100 g
	BA7851	500 g
MOPS, Free Acid, Proteomics grade	06200Q	100 g
TRICINE Buffer, Proteomics grade	GS3990	100 g
[N-Tris(Hydroxymethyl)Methylglycine]	GS3991	250 g
	GS3992	500 g
TRIS, Proteomics grade	03165P	500 g
[Tris(Hydroxymethyl)Aminomethane ]	03165Q	1 kg
TRIS Hydrochloride, Proteomics grade	09154P	500 g
	09154Q	1 kg

### Loading dyes

#### Tracking Dye - 2D

premixed formulation

2D Tracking Dye is premixed, ready-to-use, and a great complimentary product for use with 2D RITEGels™. This tracking dye very accurately monitors the progress of the 2nd dimension gel during the 2D electrophoresis process.

Description	Cat.#	Qty
Tracking Dye - 2D	GS4130	1 ml

#### Protein Gel loading buffer, 2X with Pyronin Y

Formulated for use in Western Blotting applications

Ready-to-use 2X solution

Serves as a protein denaturing loading buffer and a positive indicator of successful western transfer.

Description	Cat.#	Qty
Protein Gel loading buffer, 2X with Pyronin Y	BJ0310	5 ml

#### Loading Dye For Proteins

2X Protein Gel Loading buffer for SDS electrophoresis, containing SDS for denaturing proteins, a dye for visualization, and glycerol for easier sample deposit

Description	Cat.#	Qty
Loading Dye for Protein	446703	1 ml
	446704	5 ml

#### Bromophenol Blue, Sodium Salt

MW : 669.96

- ◆ A tracking dye for nucleic acid & protein gels.
- ◆ Also used to indicate pH range 3.0 - 4.6 (Yellow to Blue).

Description	Cat.#	Qty
Bromophenol Blue, Sodium Salt, Biotech grade	848110	50 g
	848116	100 g
Bromophenol Blue, Sodium Salt, proteomics grade	848117	50 g
	848118	100 g

### Crack free

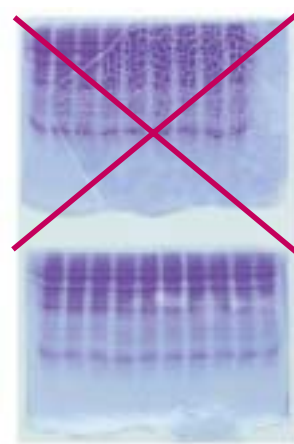
Crack-Free kit is based on a unique solution and cellophane sheets, which together regulate the rate of water released from the gel to ensure crack-free gel of up to 20% polyacrylamide content.

Crack free allows drying polyacrylamide gels without cracks for fluorography, densitometry, autoradiography and permanent storage.

Suited Gels type : native and denatured (SDS or urea) 4-20 % PAGE gels

Crack-Free Kits	Concentration : 4X	Concentration : 1X
Content :	U50450 -1kit	U50451 -1kit
Reagent volume (concentration) :	500 ml (4X)	500 ml (1X)
Number of Cellophane sheets (20 x 20 cm)	20	10
Number of gels (midi [20 x 20 cm] / mini [10 x 10 cm]) :	20/40	5/10

No more that :



Keep your gel dry and right !

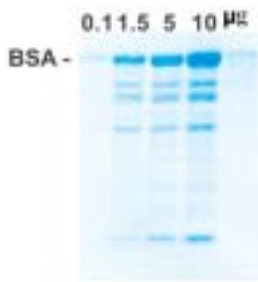
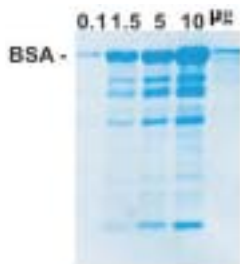
### Protein gel Staining

Protein staining in electrophoresis gels has been performed mainly by chromogenic dyes as Coomassie® and silver staining. The rising demand in more sensitive stains, compatible with protein recovery by electro-elution, or analysis by immunoblotting and MS analysis, favored the development of new stains, including Fluorescent stains and glycosylation modifications staining.

Interchim propose following formulated protein stainings covering most applications:

#### Selection guide

Product	Features Sensitivity	Type		Applications compatibility			
		Chromogenic	Fluorogenic	MS	Blotting	Electro -elution	In-Gel -elution
CooBlue Instant stain	++	+		+	+	+	
Coomassie blue	++	+		+			
Silver staining kit	++++	+		+			
ProRed, ProGreen	++++		+				
Protein In-Gel Stain	++	+		NC			+
F-Detector	+++		+	NC		+	+
Pro Save 5 min Stain	++++	+		+	+	+	



Several other stains are available as powders, for general protein stains, for glycoproteins ( labeling via periodate oxidation/reductive amination).

#### CooBlue Instant Stains

- ◆ Hands-Off! Stain and read directly (no destaining)
- ◆ High Sensitivity, below 10-20 ng of Protein per Band
- ◆ Slight/mild fixation to proteins: no denaturant, keep proteins in native form
- ◆ Compatible with further analysis of gel (silver staining) or proteins (MALDI TOF)
- ◆ Compatible with protein extraction (electro elution)
- ◆ Safe and environment friendly : No More Methanol nor Acetic Acid !

**CooBlue Instant Stain** is a superior alternative to traditional Coomassie Blue staining procedures, based on a colloidal formulation. Environmentally friendly, this ready-to-use stain does not contain methanol and acetic acid and does not require hazardous solvents for destaining. The protein bands are directly visible during the staining process. After staining, a simple and quick washing with water yields clear background, allowing optimal sensitivity. There is no need for multistep destainings as required by conventional Coomassie stainings. The simple "hands-off" staining/destaining procedure saves valuable time while reducing the handling of hazardous materials and solvent waste in your laboratory.

B.204

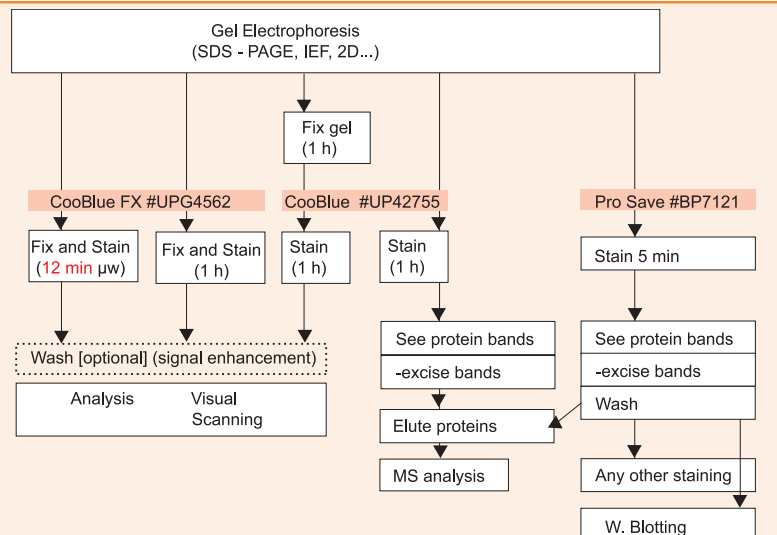
#### Selection guide

Description	Cat.#	Qty
CooBlue FX Protein Instant stain (analytical)	UPG4562A	500 ml
	UPG4562B	4.5 L
CooBlue Protein Instant stain (extraction)	UP47255A	500 ml
	UP47255B	4.5 L
Pro Save protein 5 min Stain	BP7121	1 kit

**CooBlue** Staining exhibits high sensitivity, below 20 ng of protein per band, and up to 8-10ng depending on conditions of use (fixed gel or not, protein nature...), making it ideal for most applications including SDS-PAGE and 2D gels.

The CooBlue Protein stain is available with 2 formulations, one dedicated to protein analytical applications, the other for protein extraction (also suitable for analysis).

**ProSave** stain is described page B208.



### Protein Stain, In-Gel

- ◆ Sensitivity Comparable to Coomassie Staining
- ◆ No Post-Electrophoresis Staining Needed

Protein Stain, In-Gel is a concentrated dye that is effective for proteins staining during electrophoresis. Simply add the dye to the upper buffer chamber during the process. The gel is run & removed. Once destained, the protein bands are clear & easy to identify. The Protein Stain, In-Gel is provided as a 10X concentrate. Simply add the stain to the upper buffer chamber at a final 1X concentration.

Description	Cat.#	Qty
Protein Stain, In-Gel	AN0980	100 ml*
	AN0981	1 L

\*100 ml is enough to stain 10 minigels, and 1L for 20 large gels

### Silver-BULLit™ Staining Kit

- ◆ Ultra-High Sensitivity with Very Low Background
- ◆ All Liquid - No Weighing with Clear Superior Results
- ◆ Mass Spec Compatible

Silver stain kit has been engineered for peak performance with high sensitivity and a very low (nearly undetectable) background. This all liquid format for added convenience yields superior results. The Silver-BULLit™ 1 liter kit makes up 2.5 liters of final solution. It is also mass spec compatible.

Description	Cat.#	Qty
Silver-BULLit™ Staining Kit	T08860	1 Kit

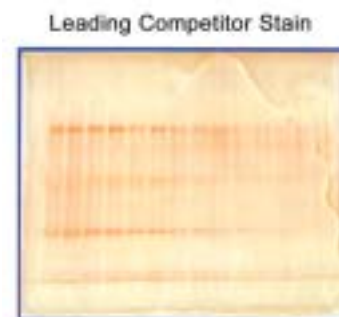
### ProRed™ & ProGreen™ High Sensitivity Protein Gel Stain

There is a great demand on sensitive and reversible stains for the protein electrophoresis because of some draw-backs of the Coomassie and the Silver staining procedures (inadequate sensitivity, metachromic effects, insufficient linearity between the protein concentration and the staining signal, and irreversibility).

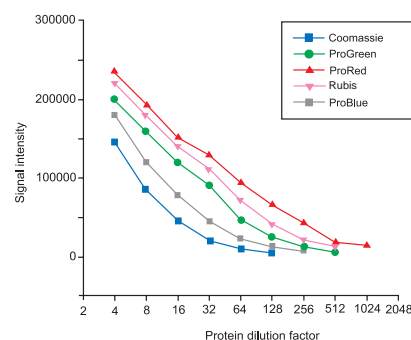
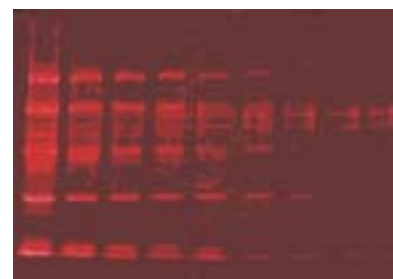
Two new stains ProRed™ and ProGreen™ fulfill the requirements of proteomics. These new stains are based on the interaction of metal chelate-detergent complexes with proteins ; they are reversible and more sensitive than Coomassie stains with linearity of the stain signal over a broad range. The progress stain is also successfully applicable on membrane proteins which are often difficult to stain.

Binding of the metal chelate to the proteins remains stable for at least 12 hours (ProGreen™) and for several days when ProRed™ was applied. Staining can be removed by treatment with alkaline buffers and/or with chelators like EDTA for a subsequent protein analysis. Destaining of ProGreen™ can be completely removed in 30 minutes by washing out the gels with 0.1mol KH<sub>2</sub>PO<sub>4</sub> and 20 mmol sodium EDTA. The ProRed™ needs stronger destaining method: 50 mmol sodium EDTA, 0.1 mol glycine buffer, pH 9.0.

Description	Cat.#	Qty
ProRed™ High Sensitivity Protein Gel Stain $\lambda_{exc} \lambda_{em}$ : 312 nm/ 590 nm	FP-BD3631	1 L
ProGreen™ High Sensitivity Protein Gel Stain $\lambda_{exc} \lambda_{em}$ : 365 nm/ 520 nm	FP-BD3641	1 L



Protein molecular weight markers (Mid/Low Range) were separated on a 10% polyacrylamide gel and stained with Silver-BULLit™ Silver Staining Kit (Gel A). Compared with competitor's brand silver stained gel (Gel B).



## Protein electrophoresis

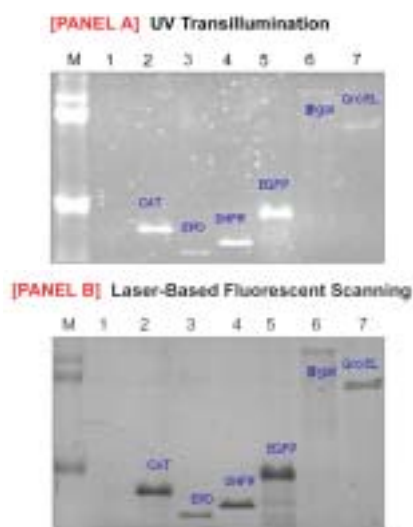


Fig. After SDS-PAGE, the gel analysis was performed with UV transilluminator (panel A) or Laser-based fluorescence scanner (panel B).

Lane 1, Negative control (no DNA template); lane 2, CAT plasmid DNA addition (25.6 KDa); lane 3, EPO plasmid DNA addition (18.5 KDa); lane 4, DHFR plasmid DNA addition (21.5 KDa); lane 5, EGFP plasmid DNA addition (29.6 KDa); lane 6,  $\beta$ -gal plasmid DNA addition (127 KDa); lane 7, GroEL plasmid DNA addition (57 KDa).

### F-Detector Cell-free labeling kit

F-Detector™ kit allows labeling and detecting nascent proteins directly after in vitro synthesis. The kit uses a fluorescent technique that offers a simplified alternative method to isotopic and recombinant synthesis engineering. It dramatically reduces the time required to obtain data thanks to its rapid detection of proteins bands immediately after electrophoresis without any downstream processing.

Benefits :

- ◆ Sensitive
- ◆ Safe
- ◆ Time reducing

Description	Cat.#	Qty
F-Detector Cell-free labeling kit	BM9781	60 $\mu$ l

### Biochemicals for Protein detection in gels

#### Alcian Blue

MW: 1298-1408

$\lambda_{abs}$ : 615-670 nm

soluble in water

- ◆ For detecting glycoproteins on nitrocellulose and in PAGE gels.

Description	Cat.#	Qty
Alcian Blue 8GX, high purity	N12351	100 mg
Alcian Blue 8GX, Ultrapure	N1235A	100 mg

#### Coomassie® Brilliant Blue R-250

MW : 825.99

$\lambda_{abs}$  : 585 nm

Soluble in water

- ◆ For protein staining after electrophoretic separations (SDS-PAGE, Agarose, PVDF).
- ◆ More soluble and more sensitive than the G-250 stain.

Description	Cat.#	Qty
Coomassie Brilliant Blue R-250 Biotech grade	11525A	10 g
	11525B	25 g
	11525C	50 g
Coomassie Brilliant Blue R-250 Proteomics grade	115256	10 g
	11525F	25 g
	11525E	50 g

#### Coomassie® Brilliant Blue G-250

MW : 854.04

$\lambda_{abs}$  : 610 nm

Soluble in water

- ◆ For protein staining after electrophoretic separations (SDS-PAGE, Agarose, PVDF).
- ◆ Used to detect protein concentration by Bradford Method.

Description	Cat.#	Qty
Coomassie BB G-250	115243	10 g
	115244	25 g
	115245	50 g
Proteomics grade	11524A	10 g
	11524B	25 g
	11524C	50 g

#### Congo Red

MW : 696.67

$\lambda_{abs}$  : 610 nm

Soluble in water

- ◆ General protein stain for SDS-PAGE and agarose gels; also color stain for early diagnosis of amyloid deposition (see page E142).

Description	Cat.#	Qty
Congo Red	N12511	1 g
	N12513	100 g

### Eosin Y

MW : 691.88

$\lambda_{abs}$  : 517 nm

Soluble in DMSO/DMF

- ◆ Reversibly stain peptides and proteins following SDS-PAGE; used for protein recovering and MS characterization.

Description	Cat.#	Qty
Eosin Y	12504A	1 g
	12504C	100 g

### Fast Green FCF

MW : 808.86

$\lambda_{abs}$  : 622nm

Soluble in DMSO/DMF

General protein stain for native PAGE, SDS-PAGE and particularly useful for IEF gels.

Description	Cat.#	Qty
Fast Green FCF, Ultrapure	648891	1 g
	648891	50 g
	648891	100 g

### Hydrazide conjugated labels

Hydrazide conjugated labels (biotin, fluorophores,...) can be used to label glycoproteins via periodate oxidation/reductive amination. Please see corresponding description in section "Labeling".

Description	Cat.#	Qty
Biotin-PEO-Hydrazine	BJ008A	50 mg
SulfoRhodamine101 Hydrazide	FP- 31036A	5 mg
Dabsyl hydrazide	FP-AY7720	100 mg
FluoProbes®547-Hydrazide	FP-BP5530	1 mg
FTSC	FP-47552A	25 mg

### Nile red

MW : 318.37

$\lambda_{exc} \lambda_{em}$  : 552/636 nm

Soluble in DMSO/DMF

General protein stain for native PAGE, SDS-PAGE and IEF gels.

Fluorescent polarity probe for protein structure and configuration.

Direct blotting, sequencing

Description	Cat.#	Qty
Nile red	FP-46875A	25 mg

### Oil Red O

MW : 408.51

$\lambda_{exc}$  : 518 nm

Soluble in DMSO/DMF

Lipid/lipoprotein stain on cellulose acetate

Description	Cat.#	Qty
Oil Red O (Sudan Red 5B)	N13001	100 g
Oil Red O	N13002	250 g
Oil Red O - Ultrapure	N13005	1 g
Oil Red O - Solution	AQ3690	100 tests

### Ponceau S

MW : 760.58

$\lambda_{abs}$  : 520 nm

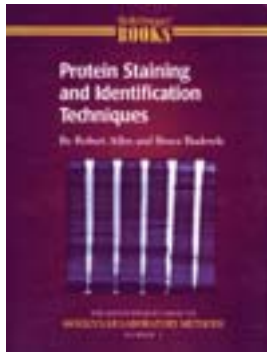
Soluble in water

Rapid reversible protein stain on nitrocellulose, cellulose acetate and PVDF membranes.

Description	Cat.#	Qty
Ponceau S	050268	50 g
	050269	100 g
	05026A	1 g
Ponceau S - Ultrapure	200785	50 ml
Ponceau S - Concentrate	200786	500 ml

# Biochemistry & Molecular Biology Analysis

## Protein electrophoresis



### Technical tip

Interchim and Berthold collaboration supports further your works. Many of our fluorescence and luminescence reagents and kits were validated with



#### NightHAWK LB984 system

PC-controlled Imaging system integrating 4 LEDs for illumination (ranges UV to blue or white), an automated digital camera and suitable optics, and software for gel documentation, exploitation, edition and archive.



ProSave, a negative stain for positive results !

- ◆ Save proteins
- ◆ Save time
- ◆ Save stain
- ◆ Save money
- ◆ Save flexibility/downstream applications

### Silver Nitrate

AgNO<sub>3</sub> MW : 169.87

- ◆ For protein staining after electrophoretic separations.
- ◆ Also used to determine chloride ions in solution.

Description	Cat.#	Qty
Silver Nitrate, Biotech grade	084961	25 g
	084962	100 g
	084963	500 g
Silver Nitrate Proteomics grade	08496Q	25 g
	08496R	100 g
	08496S	500 g

### Stains nucleic acids and proteins – Differential

Provided stain distinguish RNA (bluish purple), DNA (blue) and proteins (Red).

Description	Cat.#	Qty
Stains nucleic acids and proteins - Differential	Q70481	100 mg

Green MR et al (1973); Biochem 56, 43-51 ; Dahlberg AE et al (1969); J Mol.Biol. 41, 139-47

### Accessory reagents & Book

Description	Cat.#	Qty
Protein Staining and Identification Techniques	L76900	1 book

A reference book for successful protein staining and identification. Molecular laboratory methods. 139 pages.

Destaining bags	988422	1 u
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Remove dyes and stains from aqueous solutions (including coomassie, BET...). Complete description in Genomics electrophoresis section.

### ProSave Protein Gel stain

Our ultra-fast, easy, sensitive and flexible gel stain : Save the gel, not the proteins !

#### Main features and benefits

- ◆ Quickest staining : 5-10 min
- ◆ Highest sensitivity : 1 ng protein  
5-100 ng DNA
- ◆ Good dynamic range (1-2000 ng)
- ◆ Cost effective
- ◆ Save proteins in their better state
- ◆ Do no modify or interact with proteins, to kept them in better state (non-denaturing gels)
- ◆ Detect all proteins, even difficult ones, with minimal protein to protein variations
- ◆ Full and quick reversible : 5-7 min
- ◆ Compatible with more downstream applications : re-staining, Elution, WB, MS, Sequencing, aa analysis

ProSave is definitively the best solution to fulfil your requirements of protein staining in acrylamide gels, and more! Not like conventional methods, such as silver stain, Coomassie stain as well a Ruby stain, taking a few hours to complete. ProSave enable you to get high **quality results within just 5 minutes**.

ProSave visualize negatively ALL proteins, including glyco-, phospho-, and lipo-proteins and other difficult to stain proteins. ProSave stained gels can be imaged with any transilluminator. Proteins are preserved from dye interactions and fixation, a chief advantage for downstream applications such as MS analysis, sensible proteins with non-denatured gels.

So gels can be easily and fully destained in 3-5minutes, for subsequent uses:

- ◆ Re-staining by any other method
- ◆ Electrotransfert onto PVDF or NC membranes for immunoblotting
- ◆ Electroelution for protein recovery
- ◆ Mass Spectrometry analysis (ProSave stain has usually higher rate of good annotation)
- ◆ Amino acid analysis
- ◆ N-terminal sequencing

Much more, ProSave also **visualizes also nucleic acids** (5-100pg DNA, 1µg RNA), making it useful for genomics. The number of transformants notably increased x 3-4 compared with conventional ethidium bromide staining plus UV-irradiation at 312nm.

Finally, ProSave is **non toxic** to user, stable and cheaper (7.8€/minigel) than fluorescent methods (14€/minigel) and cost effective compared to coomassie and silver stainingS.

Description	Cat.#	Qty
ProSave Protein Gel stain	BP7121	1kit *

\*1 kit provides sufficient quantity of 2 solutions (a sensitizer and a developing) to stain 20-25 minigels.