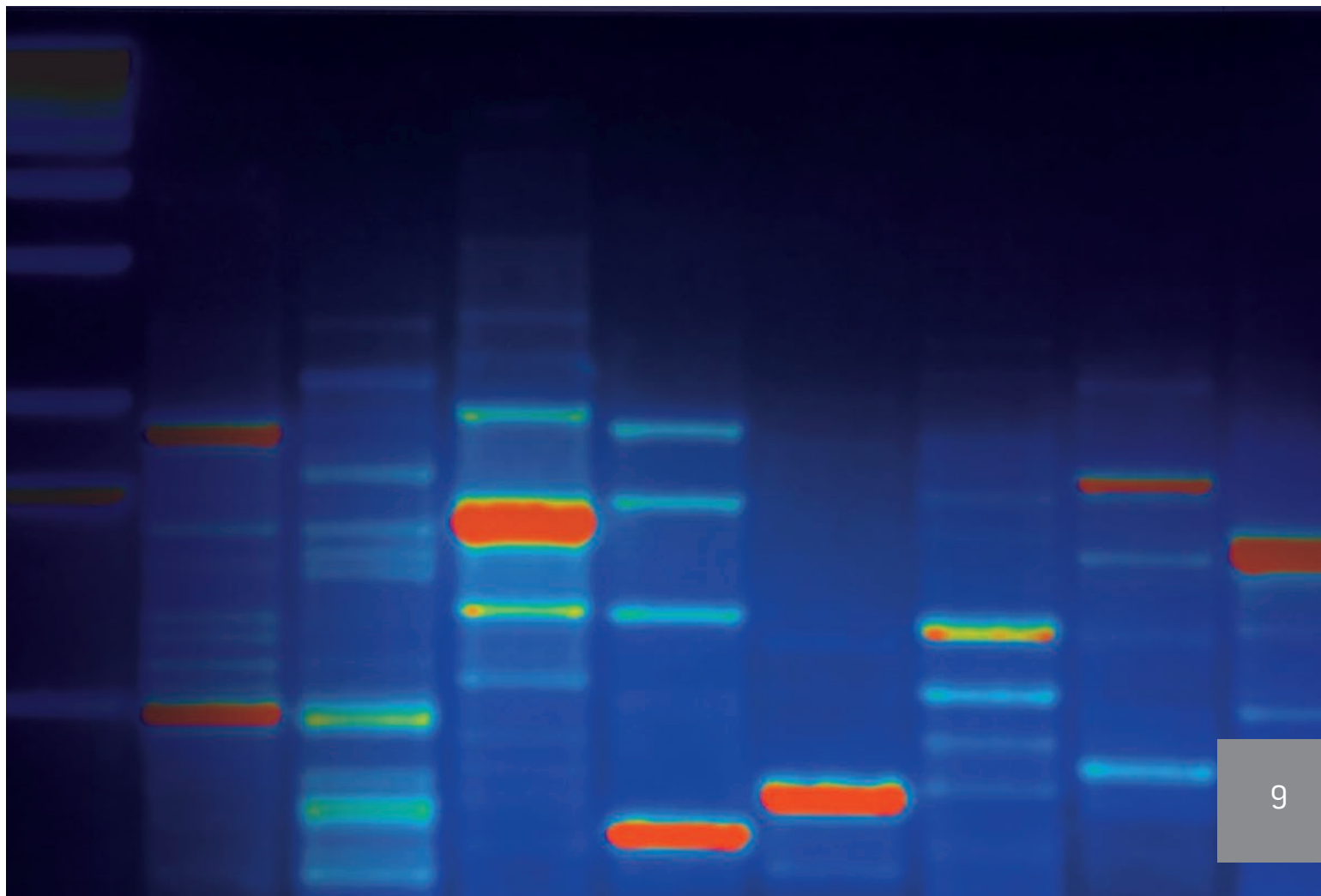


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## Electrophoresis and Analysis

### Nucleic Acid Electrophoresis

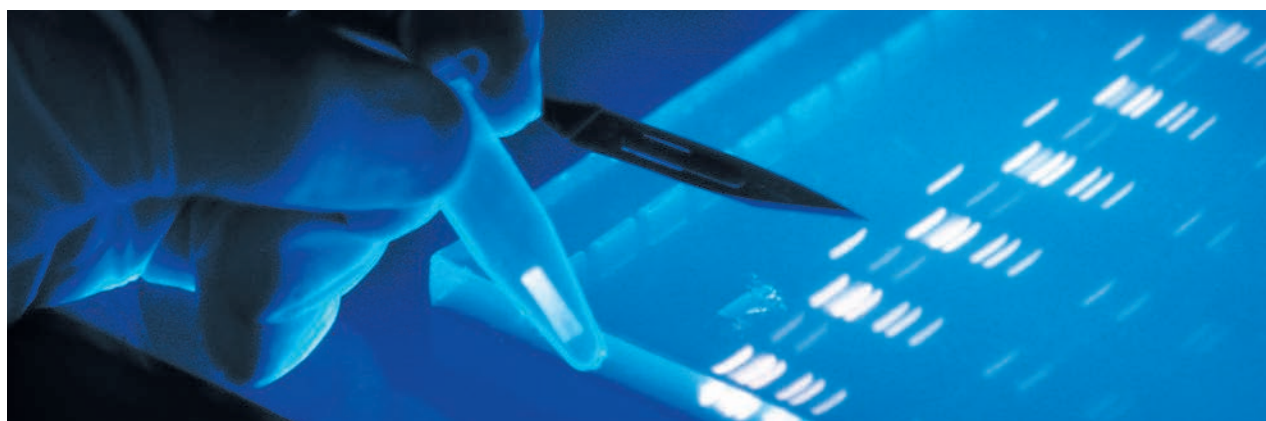
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# Nucleic Acid Electrophoresis

From the Very Beginning to the Next Innovation



## Nucleic Acid Electrophoresis

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## Introduction

Lonza is the leading innovator and world's most trusted supplier of agarose and precast gels. We are experts in protein and nucleic acid electrophoresis, bringing a strong history of innovation and reliability to your most important research. Our well known product brands set the standard in quality, purity and performance for electrophoresis.

- SeaKem®, NuSieve™ and MetaPhor™ Agarose
- FlashGel™ System
- Reliant™, Latitude™ and PAGEr™ Precast Gels
- AccuGENE™ Buffers
- GelBond® Gel Support Film

Covering the most extensive range of applications, our products are optimized for the unique requirements of your most critical molecular biology techniques. When our standard products do not completely fit your needs, inquire about our custom capabilities to find a product that does.

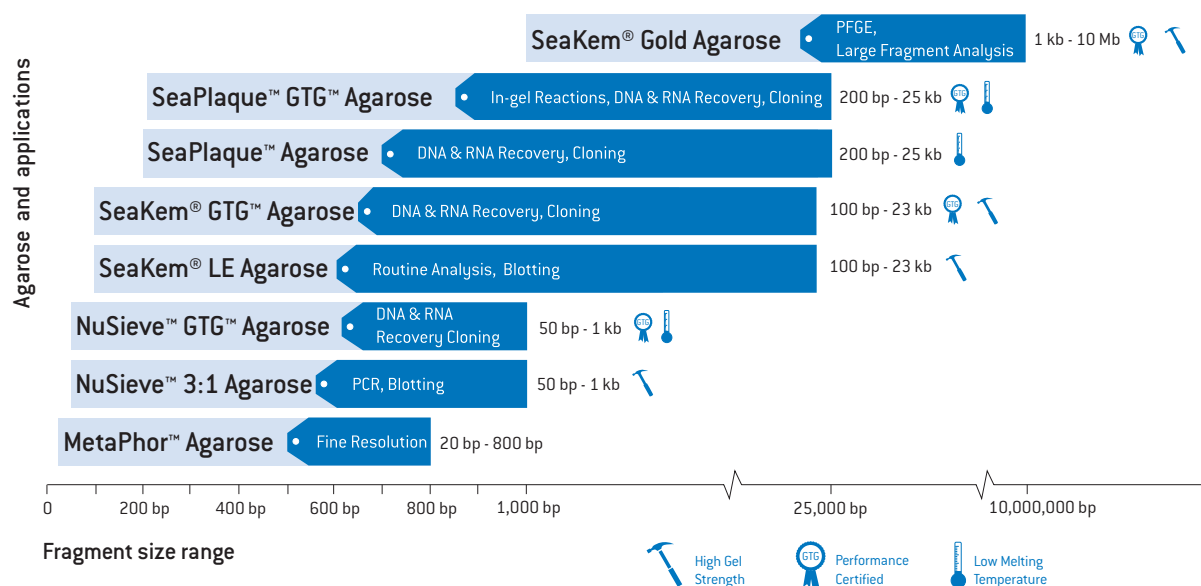
## Agarose Selection Guide

Selecting the best agarose for your application can minimize opportunity for error, optimize results, and even reduce cost. We offer a wide range of agarose types that are specifically engineered to optimize results by fragment size, sample type and application. The selection tools below will get you started. The following pages will

guide you to the right concentration, buffer and marker to use for best performance in your experiment. If you require additional support, visit our online Sourcebook for Electrophoresis.

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### Choose the Agarose that is Right for You





# Agarose Selection Guide

Continued

## Agarose and Compatible Techniques

Recovery method	SeaKem® LE	SeaKem® GTG™	SeaPlaque™	SeaPlaque™ GTG™	NuSieve™ 3:1	NuSieve™ GTG™	MetaPhor™	SeaKem® Gold	SeaPrep™	I.D.na™
In-gel reactions				■		■				
β-Agarase			■	■		■				
Phenol/chloroform			■	■		■				
Recovery columns	■	■	■	■	■	■	■	■		■
Electroelution	■	■	■	■	■	■	■	■		■
Freeze/squeeze	■	■	■	■	■	■	■	■		■
<b>Blotting</b>										
Southern < 1 kb					■					
Southern > 1 kb	■									
Northern < 1 kb					■					
Northern > 1 kb	■									
<b>Specialty applications</b>										
Viral plaque assays			■	■						
Preparation of megabase samples										
PFGE								■		
Cell culture			■	■					■	
Encapsulation and embedding of cells									■	
DNA identity testing										■
Comet assays	■	■								



Our agarose is GUARANTEED DNase/RNase-free

## SeaKem® LE Agarose

The Standard for Routine Analysis



SeaKem® LE Agarose is the ideal multipurpose, molecular biology grade agarose for any DNA or RNA application.

### ■ Benefits

- Wide resolution range – 100 bp–23 kb
- High gel strength – ideal for blotting
- Consistent lot-to-lot performance

### ■ Applications

- Broad range fragment separation
- Southern and northern blotting
- PCR greater than 1 kb
- Immunoprecipitation techniques
- Baculovirus screening and colony lifts

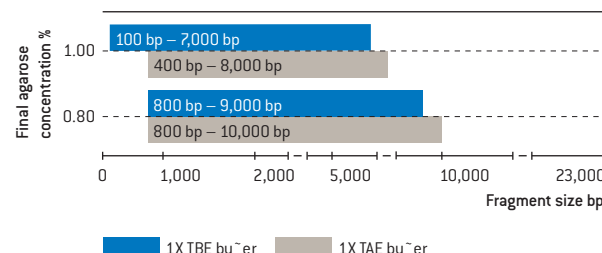
18°C to 26°C

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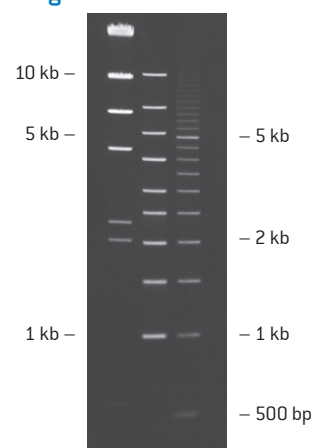
[www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)



## SeaKem® LE Agarose



## 1% SeaKem® LE Agarose Gel in TAE Buffer



Lane 1: *Hind* III digest of lambda DNA  
Lane 2: DNA marker 1 to 10 kb (Lonza)  
Lane 3: 500 bp DNA ladder (Lonza)

## Ordering Information – SeaKem® LE Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50001	50001	SeaKem® LE Agarose	18°C to 26°C	25 g
50002	50002	SeaKem® LE Agarose	18°C to 26°C	100 g
50000	50000	SeaKem® LE Agarose	18°C to 26°C	125 g
50004	50004	SeaKem® LE Agarose	18°C to 26°C	500 g
50005	50005	SeaKem® LE Agarose	18°C to 26°C	1 kg

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GelStar® and SYBR® Green Nucleic Acid Gel Stains	325,329

## MetaPhor™ Agarose

The Highest Resolution Agarose Available

MetaPhor™ Agarose offers twice the resolution capability of standard agarose for PCR, STR and AmpFLP analysis. This intermediate melting temperature agarose rivals polyacrylamide and is capable of resolving DNA fragments differing in size by 2% between 20 bp and 800 bp.

### ■ Benefits

- Fine separation of fragments 20 bp–800 bp
- Rivals the resolution capability of polyacrylamide
- Eliminates hazards associated with polyacrylamide

### ■ Applications

- Small PCR analysis
- STR analysis
- RT-PCR

### ■ Performance and Quality Tests

- DNA resolution: 4 bp resolution of DNA fragments at 200 bp and 16 bp resolution at 800 bp in TBE buffer
- Gel background: gel exhibits low background fluorescence after ethidium bromide staining
- DNA binding: none detected

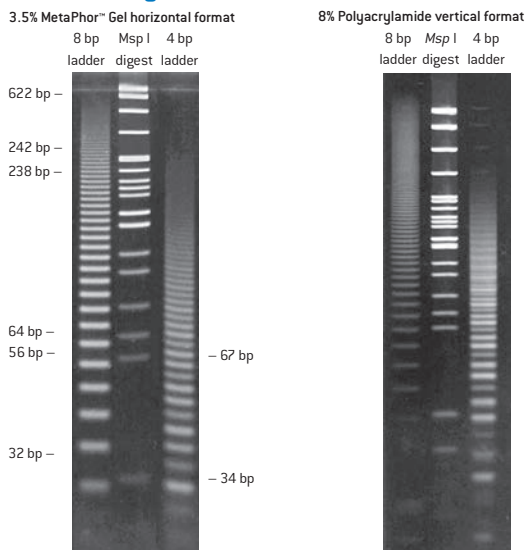
18°C to 26°C

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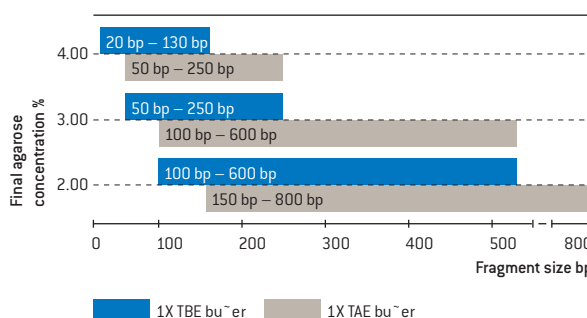
[www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)



## MetaPhor™ Agarose



## Resolution of DNA Ladders in MetaPhor™ Agarose



DNA ladders with 4 bp or 8 bp step sizes were prepared by ligation of Bgl II linkers. Aliquots of 0.8 µg of the ladders were separated on a 3.5% MetaPhor™ Agarose gel in a horizontal format and compared to an 8% polyacrylamide gel run in a vertical format in TBE buffer. The horizontal gel (15 cm × 20 cm and 3.0 mm thick) was run at 6.7 V/cm for 4 hours at 15°C. The vertical gel (10 cm × 20 cm and 1.0 mm thick) was run at 8 V/cm for 2 hours.

## Ordering Information – MetaPhor™ Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50181	50181	MetaPhor™ Agarose	18°C to 26°C	25 g
50180	50180	MetaPhor™ Agarose	18°C to 26°C	125 g
50184	50184	MetaPhor™ Agarose	18°C to 26°C	500 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

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GelStar® and SYBR® Green Nucleic Acid Gel Stains	325,329



## NuSieve™ 3:1 Agarose

The Reliable Choice for PCR Analysis

NuSieve™ 3:1 Agarose was the first and still is the most reliable choice for separating and resolving PCR and RT-PCR fragments. This molecular biology grade agarose produces strong, easy-to-handle gels, making it ideal for blotting of small fragments.

### Benefits

- Exceptional resolution of small fragments between 50 bp and 1 kb
- Superior gel strength for blotting
- Widely cited as the choice for PCR analysis

### Applications

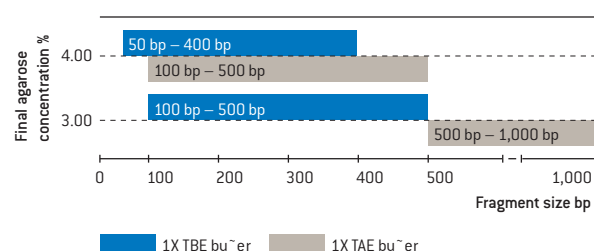
- Small DNA and RNA fragment analysis
- Blotting of small fragments
- RT-PCR and Genotyping

### Performance and Quality Tests

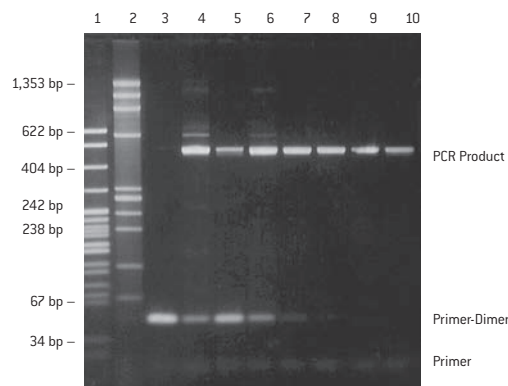
- Resolution: DNA fragments  $\leq 1,000$  bp are finely resolved after electrophoresis
- Gel background: gel exhibits low background fluorescence after ethidium bromide staining
- DNA binding: none detected

18°C to 26°C

### NuSieve™ 3:1 Agarose



### PCR Products on a NuSieve™ 3:1 Agarose Gel



A 550 bp sequence from lambda DNA was amplified (25 cycles) using primers and Taq DNA polymerase supplied in the GeneAmp® Kit (Roche Molecular Systems). PCR products and controls were electrophoresed on a 4% NuSieve™ 3:1 Agarose gel in TAE buffer at 5 V/cm for 3 hours. Lane 1, Msp I digest of pBR322 DNA (1.5 µg); lane 2, Hae III digest of øX174 DNA (1.5 µg); lane 3, no DNA control; lanes 4–9, PCR products resulting from different reaction conditions (7 µL of 100 µL reaction mixture); and lane 10, a positive control where kit template was added.



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### Ordering Information – NuSieve™ 3:1 Agarose

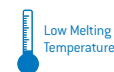
Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50091	50091	NuSieve™ 3:1 Agarose	18°C to 26°C	25 g
50090	50090	NuSieve™ 3:1 Agarose	18°C to 26°C	125 g
50094	50094	NuSieve™ 3:1 Agarose	18°C to 26°C	500 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

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GelStar® and SYBR® Green Nucleic Acid Gel Stains	325,329

## NuSieve™ GTG™ Agarose

Performance Certified for Small Fragment Recovery and In-gel Reactions



NuSieve™ GTG™ Agarose provides optimal separation and resolution of PCR and RT-PCR fragments. This low melting ( $\leq 65^{\circ}\text{C}$ ) temperature agarose is easy-to-handle and can be used for cloning procedures directly from remelted agarose. Genetic Technology Grade™ Agarose is quality tested to certify performance.

### Benefits

- Fine resolution of small fragments between 50 bp and 1 kb
- Performance certified for digestion and ligation

### Applications

- Analysis and recovery of small DNA fragments
- In-gel PCR and In-gel ligations/transformations

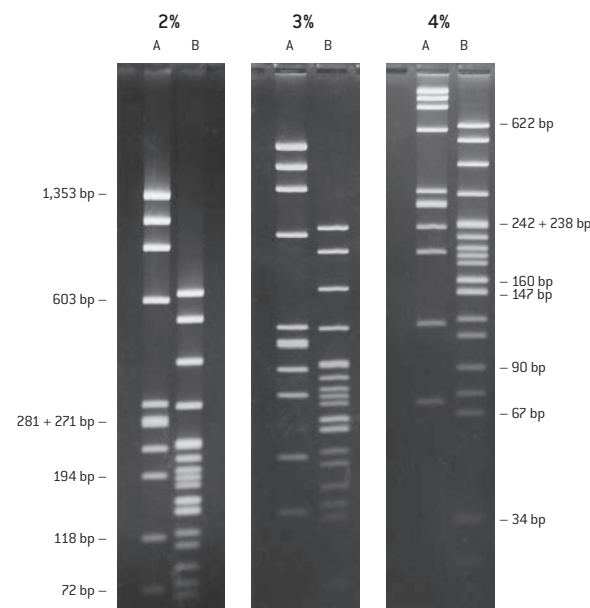
### Performance and Quality Tests

- Enzymatic activity in the presence of remelted gel: T4 DNA ligase and transformation test
- Resolution: DNA fragments  $\leq 1,000$  bp are finely resolved after electrophoresis
- Gel background: gel exhibits low background fluorescence after ethidium bromide staining
- DNase and RNase activity: none detected
- DNA binding: none detected

18°C to 26°C

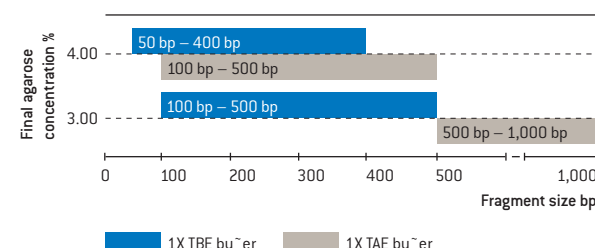
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### Fine Resolution of Low Molecular Weight DNA Fragments in NuSieve™ GTG™ Agarose



DNA fragments were separated in 2%, 3%, and 4% NuSieve™ GTG™ Agarose gels in 1X TBE buffer. Lane A: Hae III digest of  $\phi$ X174 DNA, 0.5  $\mu\text{g}/\text{lane}$ . Lane B: Msp I digest of pBR322 DNA, 0.5  $\mu\text{g}/\text{lane}$ . Running conditions: 1X TBE at 5 V/cm.

### NuSieve™ GTG™ Agarose



### Ordering Information – NuSieve™ GTG™ Agarose

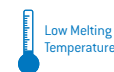
Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50081	50081	NuSieve™ GTG™ Agarose	18°C to 26°C	25 g
50080	50080	NuSieve™ GTG™ Agarose	18°C to 26°C	125 g
50084	50084	NuSieve™ GTG™ Agarose	18°C to 26°C	500 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

Related Products	Page
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## SeaPlaque™ GTG™ Agarose

Performance Certified for Large Fragment Recovery and In-gel Reactions



Confidently resolve fragments from 200 bp to 25 kb prior to PCR, cloning, digesting, or sequencing in the presence of re-melted SeaPlaque™ GTG™ Agarose, without additional purification steps. This low-melting temperature ( $\leq 65^\circ\text{C}$ ) Genetic Technology Grade™ Agarose is quality tested to certify performance.

### Benefits

- Optimal separation range for DNA and RNA recovery of fragments: 200 bp to 25 kb
- Performance certified

### Applications

- Analysis and recovery of large DNA fragments
- In-gel PCR and In-gel ligations and transformations
- DNA and RNA digestion

### Performance and Quality Tests

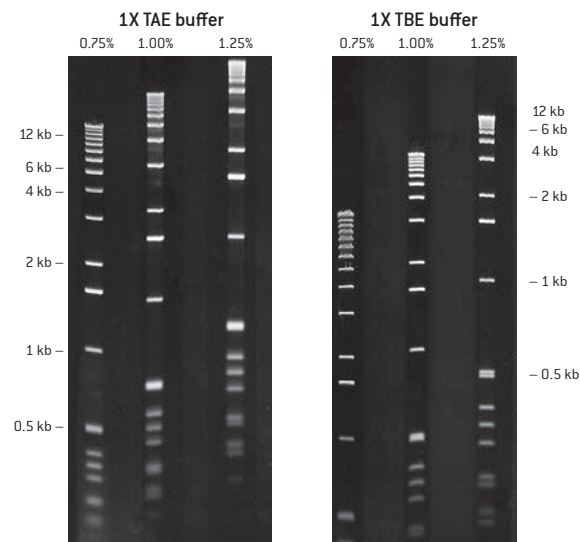
- Enzymatic activity in the presence of remelted gel:
  - T4 DNA ligase and transformation test
  - *Hind* III and *Eco*RI restriction digestion test
- Fine resolution of DNA fragments  $\geq 1,000$  bp with low background after ethidium bromide staining
- DNase and RNase activity: none detected
- DNA binding: none detected

18°C to 26°C

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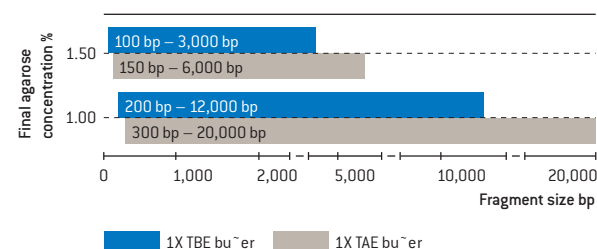
[www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

## Resolution Performance of SeaPlaque™ GTG™ Agarose



Separation of DNA markers in 0.75% to 1.25% SeaPlaque™ GTG™ Agarose gels in 1X TAE and TBE buffers. 1 kb DNA ladder, 1  $\mu\text{g}$ /lane, DNA unheated prior to loading. The gels were cast in a 25.5 cm framing gel of 1% SeaKem® GTG™ Agarose in a submarine chamber and run under 5 mm of buffer overlay at 5 V/cm for 3 hours, 40 minutes (TBE buffer) and 4 hours, 30 minutes (TAE buffer).

## SeaPlaque™ GTG™ Agarose



## Ordering Information – SeaPlaque™ Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50111	50111	SeaPlaque™ GTG™ Agarose	18°C to 26°C	25 g
50110	50110	SeaPlaque™ GTG™ Agarose	18°C to 26°C	125 g
58001	58001	$\beta$ -Agarase	18°C to 26°C	100 units
58005	58005	$\beta$ -Agarase	18°C to 26°C	500 units

Larger package sizes are available upon request. Please inquire for pricing and availability.

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GelStar® and SYBR® Green Nucleic Acid Gel Stains	325,329

## SeaKem® GTG™ Agarose

Performance Certified for Large Fragment Recovery



SeaKem® GTG™ Agarose ensures reliable digestion and ligation from recovered DNA or RNA fragments from 100 bp to 23 kb. Our Genetic Technology Grade™ Agarose is quality tested to certify performance.

### Applications

- Best choice for DNA and RNA recovery and cloning of fragments 100 bp to 23 kb

### Performance and Quality Tests

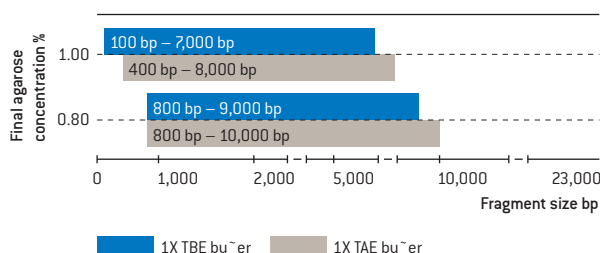
- Restriction endonuclease digestion test: *EcoR* I and *Hind* III are tested for complete digestion of electroeluted, linearized pBR322 DNA
- Ligation of recovered DNA
- Fine resolution of DNA fragments  $\geq 1,000$  bp with low background after ethidium bromide staining
- DNase and RNase activity: none detected
- DNA binding: none detected

18°C to 26°C

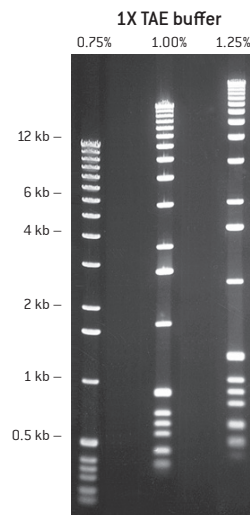
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### SeaKem® GTG™ Agarose

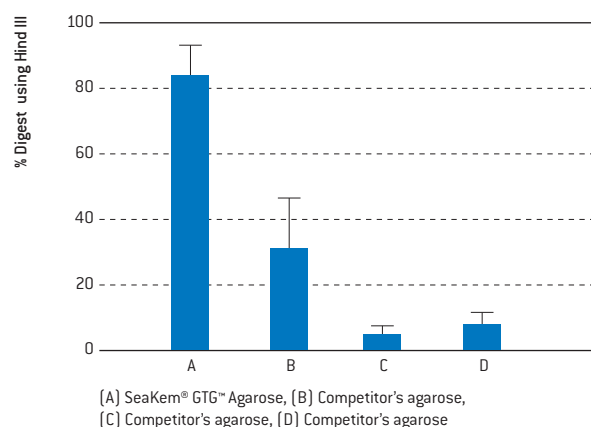


### Resolution Performance of SeaKem® GTG™ Agarose



1 kb DNA ladder (Lonza) 1 µg/lane, unheated

### Efficient Digestions after Recovery



### Ordering Information – SeaKem® GTG™ Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50071	50071	SeaKem® GTG™ Agarose	18°C to 26°C	25 g
50070	50070	SeaKem® GTG™ Agarose	18°C to 26°C	125 g
50074	50074	SeaKem® GTG™ Agarose	18°C to 26°C	500 g

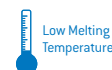
Larger package sizes are available upon request. Please inquire for pricing and availability.

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# SeaPlaque™ Agarose

The Original Low-melting Temperature Agarose



SeaPlaque™ Agarose is the original low-melting temperature agarose and has been a staple in molecular biology labs for over 40 years. This molecular biology grade agarose produces gels with greater sieving capabilities from 200 bp to 25 kb, and with higher clarity than standard melting temperature agarose. Ideal for preparative DNA and RNA electrophoresis.

## Benefits

- Ideally suited for DNA and RNA recovery
- Also ideal for cloning of tissue culture cells and viral plaque assays

## Applications

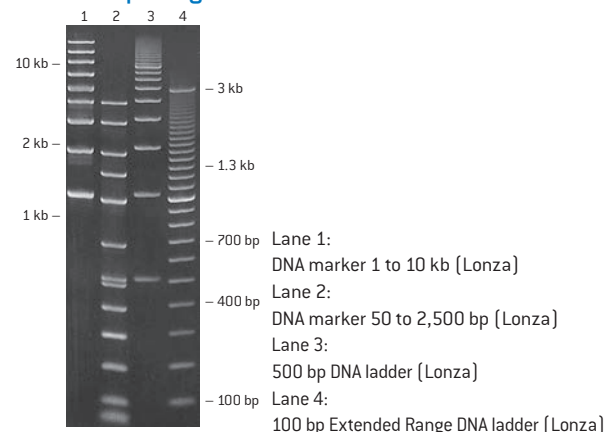
- Preparative DNA and RNA electrophoresis
- Viral plaque assays
- Cell culture
- Separating proteins >600 kDa

18°C to 26°C

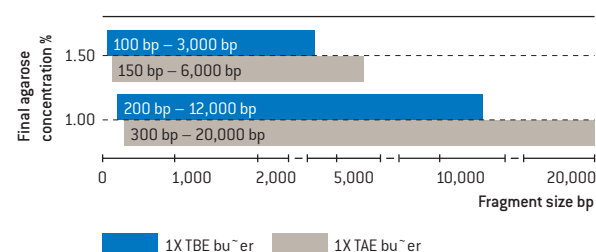
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## 1% SeaPlaque™ Agarose Gel



## SeaPlaque™ Agarose



## Ordering Information – SeaPlaque™ Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50101	50101	SeaPlaque™ Agarose	18°C to 26°C	25 g
50100	50100	SeaPlaque™ Agarose	18°C to 26°C	125 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

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AccuGENE™ Electrophoresis Buffers	332
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GelStar® and SYBR® Green Nucleic Acid Gel Stains	325,329

## SeaKem® Gold Agarose

Performance Certified for Rapid Resolution of Megabase DNA by PFGE



SeaKem® Gold Agarose is ideal for separating very large DNA fragments or doing pulsed field gel electrophoresis (PFGE). This Genetic Technology Grade™ Agarose is ideal for rapid resolution of megabase DNA, decreasing run times by up to 50% for PFGE.

### ■ Benefits

- Capable of rapid separation of large DNA from 30 kb to 50 kb by horizontal electrophoresis or 50 kb to 10 Mb by PFGE
- Good multipurpose, high gel strength agarose for separations  $\geq 1,000$  bp
- Specially manufactured to create a strong gel that is easy-to-handle
- Guaranteed DNase and RNase-free

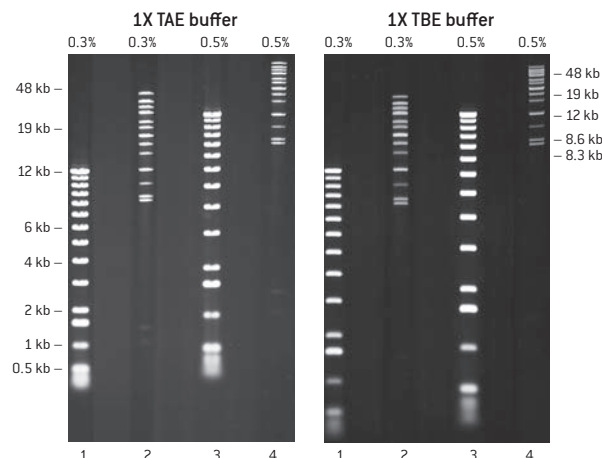
### ■ Applications

- Large fragment separation
- Pulsed field gel electrophoresis
- Blotting of megabase DNA
- Effective for separating proteins  $\geq 600$  kDa

### ■ Performance and Quality Tests

- Relative DNA mobility: 1.3 under PFGE conditions [SeaKem® LE Agarose = 1.0]
- Restriction endonuclease digestion test: *EcoR* I and *Hind* III tested for complete digestion of recovered DNA
- Ligation of recovered DNA
- Resolution: DNA fragments  $\geq 1,000$  bp are finely resolved after electrophoresis
- Gel background: gel exhibits low background fluorescence after ethidium bromide staining
- DNase and RNase activity: none detected
- DNA binding: none detected

### Performance of SeaKem® Gold Agarose for DNA $\leq 50$ kb



DNA markers separated in 0.3% and 0.5% SeaKem® Gold Agarose gels in 1X TAE and TBE buffers. Lanes 1 and 3 are 1 kb ladders, 1  $\mu$ g/lane, DNA unheated prior to loading. Lanes 2 and 4 are high molecular weight markers [8.3, 8.6, 10.1, 12.2, 15.0, 17.0, 19.4, 22.6, 24.8, 29.9, 33.5, 38.4, 48.5 kb], 0.3  $\mu$ g/lane, DNA heated 10 minutes at 65°C prior to loading. Gels were cast in a 25.5 cm framing gel of 1% SeaKem® GTG™ Agarose in a submarine chamber and run under 5 mm of buffer overlay at 1 V/cm for 16 hours [TAE buffer], and 20 hours [TBE buffer].

18 to 26°C

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### Ordering Information – SeaKem® Gold Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50152	50152	SeaKem® Gold Agarose	18°C to 26°C	25 g
50150	50150	SeaKem® Gold Agarose	18°C to 26°C	125 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

Related Products	Page
InCert™ Agarose and Megabase DNA Standards	306
AccuGENE™ Electrophoresis Buffers	332
DNA Ladders and Markers	328
GelStar® and SYBR® Green Nucleic Acid Gel Stains	325,329

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## SeaKem® ME Agarose

Ideal for Serum Protein and IEP Analysis

SeaKem® ME Agarose is the ideal choice for serum protein electrophoresis and immunoelectrophoresis, and may be used for DNA electrophoresis.

### ■ Benefits

- Enhanced resolution in serum protein electrophoresis
- High gel clarity and minimal non-specific binding

### ■ Applications

- Serum protein electrophoresis
- Immunoelectrophoresis
- Nucleic acid electrophoresis

 18°C to 26°C

 Pages 469–474

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### Ordering Information – SeaKem® ME Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50011	50011	SeaKem® ME Agarose	18°C to 26°C	25 g
50010	50010	SeaKem® ME Agarose	18°C to 26°C	125 g
50014	50014	SeaKem® ME Agarose	18°C to 26°C	500 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

## SeaPrep™ Agarose

Ideal for Cell Culture Applications

SeaPrep™ Agarose is a unique ultra-soft agarose, ideal for high efficiency hybridoma cloning. It is also used for expanding cDNA libraries in a strictly representative fashion, decreasing the possibility that less abundant clones vanish during amplification due to differential rates of replication.

### ■ Specifications

- Melting temp: ≤50°C at 1%
- Gelling temp: 8°C to 17°C at 0.8%
- Gel Strength: >75 g/cm<sup>2</sup> at 2%

### ■ Applications

- Cell culture
- Hybridoma cloning
- Encapsulation/embedding of cells

 18°C to 26°C

 Pages 469–474

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### Ordering Information – SeaPrep™ Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50302	50302	SeaPrep™ Agarose	18°C to 26°C	25 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

Related Products	Page
AccuGENE™ Electrophoresis Buffers	332

## I.D.NA™ Agarose

Designed for Identity Testing

I.D.NA™ Agarose is specially manufactured for DNA identity testing. For reliable separation of VNTRs, HVRs, RFLPs, and DNA size standards, it is a perfect match for your DNA typing tests.

### ■ Benefits

- Performance certified to assure lot-to-lot reliability for DNA identity testing
- Crisp DNA separation to accurately discriminate DNA fragments
- Strong, easy-to-handle gels allow for trouble-free high efficiency blotting

### ■ Applications

- DNA identity testing

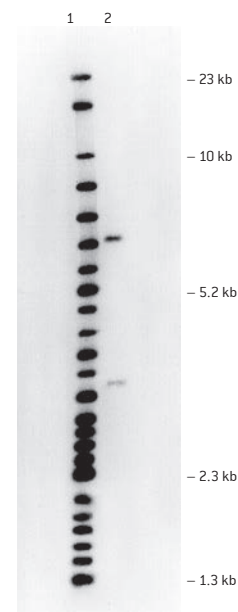
### ■ Performance and Quality Tests

- DNase and RNase activity: none detected
- DNA binding: none detected

 18°C to 26°C

 Page 470 (Analytical specifications)

## Resolution and Transfer Performance of I.D.na™ Agarose



An autoradiogram of DNA size standards (LIFECODES Corp.) and *Hae* III-digested K562 DNA probed with D4S139 (Invitrogen). DNA was electrophoresed at 1 V/cm for 16 hours in a 1% I.D.NA™ Agarose gel, transferred, and probed. Lane 1: DNA size standards; Lane 2: alleles detected with D4S139.

## Ordering Information – I.D.NA™ Agarose

Cat. No. NA	Cat. No. EU	Product Name	Storage Conditions	Size
50170	50170	I.D.NA™ Agarose	18°C to 26°C	125 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

Related Products	Page
AccuGENE™ Electrophoresis Buffers	332
DNA Ladders and Markers	328
GelStar® and SYBR® Green Nucleic Acid Gel Stains	325,329

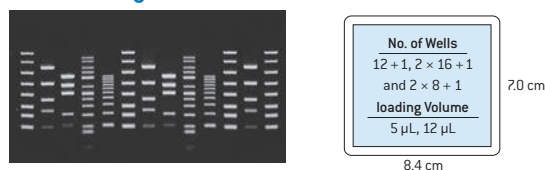


## Precast Gels for DNA and RNA Selection Guide

We offer a complete family of precast agarose gels for DNA and RNA electrophoresis. Our unique gel options cover the full range of separation needs, from ultra-fast PCR analysis and recovery, to fine resolution and high-throughput separations. Our custom manufacturing capabilities can

support the requirements of nearly any application. All Lonza Gels are precision manufactured with our high quality SeaKem® and NuSieve™ Agarose and functionally tested for consistent performance.

### FlashGel™ System

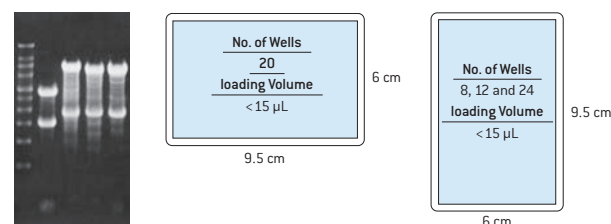


#### ■ Five Minute DNA Separation:

- Separate DNA 10 bp to 10 kb and RNA 0.5 kb to 9 kb
- Watch DNA migrate in real time without UV light
- Recover samples directly, without purification
- Run 15–34 samples

See page 310 for a complete product description.

### Reliant™ Minigels

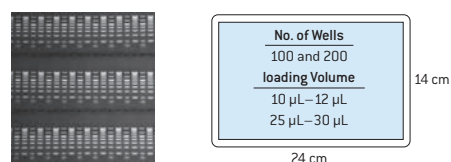


#### ■ Small Format Gels for DNA and RNA:

- Run 8–24 samples
- Ideal for blotting and recovery
- Fits standard horizontal chambers

See page 317 for a complete product description.

### Latitude™ HT Gels

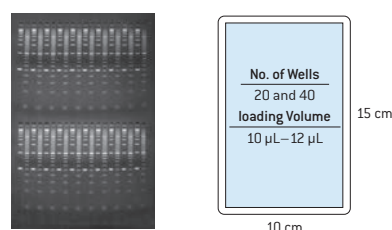


#### ■ Large Format Gels for DNA:

- Run 100–200 samples
- Ideal for high-throughput screening of DNA samples
- Fits standard horizontal chambers

See page 319 for a complete product description.

### Latitude™ Midigels

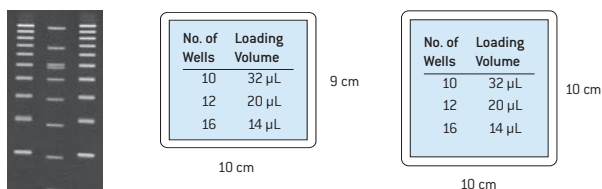


#### ■ Medium Format Gels for DNA and RNA:

- Run 20–40 samples
- Ideal for routine analysis, blotting and recovery
- Fits standard horizontal chambers

See page 321 for a complete product description.

### PAGEr™ Gold TBE Gels



#### ■ Vertical Polyacrylamide Gels for DNA:

- Run 10–16 samples
- Ideal for fine resolution
- Easy to load and open
- Fits most standard mini-vertical chambers

See page 322 for a complete product description.

Contact Scientific Support to inquire about custom precast gels.

## FlashGel™ System

Fast, Sensitive, Simple Analysis, Recovery, and Documentation of DNA and RNA

The FlashGel™ System gets straight to your results. Simply load samples, watch bands migrate and get data in as little as 2 minutes. Say goodbye to gel preparation, band excision, purification, and UV light. Complete separation, recovery and documentation safely, at the bench, in minutes.

### ■ 5 Minute Separation and Recovery

- See bands in as little as 2 minutes
- Recover samples directly, without UV light, band excision or purification

### ■ Real-time Separation and Documentation

- Watch band migration as it happens
- Photograph gels at the bench, without DNA damaging UV light

### ■ Outstanding Sensitivity and Resolution

- 5–20 times more sensitive than ethidium bromide; detect <0.1 ng DNA or <10 ng total RNA
- Clean, sharp separation and straight, uniform sample lanes



FlashGel™ Dock and Cassettes

## FlashGel™ System for DNA

5 Minute DNA Analysis

The FlashGel™ System for DNA is the ideal sample screening tool. Check up to 34 PCR or restriction fragments quickly, without having to plan your day around agarose gels.

### ■ Fast, Simple Procedure

1. Insert cassette into dock.
2. Pre-load wells with distilled or deionized water.
3. Load samples.
4. Plug in and turn on light and electrophoresis voltage.
5. Watch until desired separation is achieved.
6. Photograph.

### ■ 5 Minute Separation

- The FlashGel™ System provides high voltage separation of fragments [275 V for 2–7 minutes, depending upon fragment size]



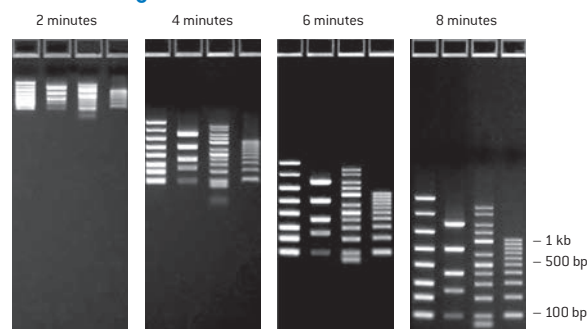
FlashGel™ System

The FlashGel™ System consists of enclosed, disposable, precast agarose gel cassettes and a combination electrophoresis and transilluminator unit.

- **FlashGel™ Cassettes contain precast, prestained agarose gels and buffer** – no need for gel preparation, buffer addition or gel staining
- The FlashGel™ Dock is an electrophoresis apparatus with a built-in visible light transilluminator that provides both separation and detection
- The FlashGel™ Camera is a compact camera system designed to photograph FlashGel™ Cassettes right at the bench
- FlashGel™ Markers are recommended for best performance

 [www.flashgel.com](http://www.flashgel.com)

## Separation at Various Run Times on the FlashGel™ System



Markers run on a 1.2% FlashGel™ Cassette, 12+1-well format, 275 V for times as shown. Sample lanes from left to right: FlashGel™ DNA Marker [100 bp–4 Kb], FlashGel™ QuantLadder, Lonza 50–2500 bp Marker, Lonza 100 bp Ladder.

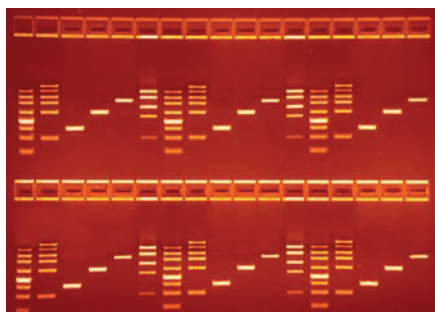


## FlashGel™ System for DNA

Continued

### Real-time Visualization

- Built-in illumination, allows you to view DNA under ambient light as it migrates through the gel; stop the run when desired separation is reached; safely view the cassette on the lighted dock without eye protection.
- DNA bands separated on FlashGel™ Cassettes are also detectable by UV light and may be photographed using standard gel documentation systems. Use the FlashGel™ Camera for best performance.



DNA bands as viewed during a run on the FlashGel™ Dock.

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Page 314 (specifications)

Related Products	Page
FlashGel™ System for Recovery	316
FlashGel™ System for RNA	316
FlashGel™ Camera	315
FlashGel™ Dock	315
FlashGel™ Power Supply	315

## FlashGel™ System for Recovery

### 5 Minute DNA Recovery

Direct DNA recovery using the FlashGel™ System for Recovery eliminates agarose gel preparation, band excision, and purification. The system delivers highly efficient recovery, free from inhibitors and UV-induced damage, in a simple 5–10 minute protocol.

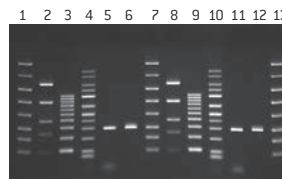
- Go from sample loading to recovery in just 5 minutes
- Recover samples directly from the cassette, without band excision or purification
- Visualize sample recovery without UV
- Recover at 80%–100% efficiency

[www.flashgel.com](http://www.flashgel.com)

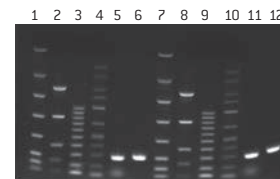
### Superior Resolution

- Resolve fragments in 2–7 minutes, and see clean, sharp band separation, and straight, uniform sample lanes

### Comparison of FlashGel™ System with Company I



1.2% FlashGel™ Cassette, 12+ 1-well, single-tier format. 275 V, 7 minute run on The FlashGel™ Dock.



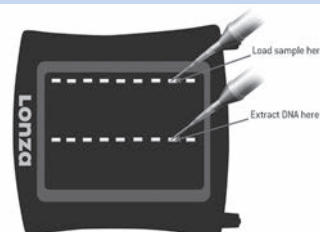
Company I 1.2% gel, 12-well, single-tier format. 30 minute run.

Lanes 1 and 7: FlashGel™ DNA Marker (100 bp–4 kb);  
 Lanes 2 and 8: FlashGel™ QuantLadder;  
 Lanes 3 and 9: Lonza 100 bp Ladder;  
 Lanes 4 and 10: Lonza 50–2500 bp Marker;  
 Lanes 5 and 11: 285 bp  $\beta$ -actin PCR\*;  
 Lanes 6 and 12: 294 bp control PCR\* (Company A)  
 \*Samples diluted with 1X FlashGel™ Loading Dye prior to loading.

[www.flashgel.com](http://www.flashgel.com)

### Fast, Simple Procedure

1. Load samples in top tier of wells.
2. Run until band of interest almost reaches the second tier of wells.
3. Stop the run and add FlashGel™ Recovery Buffer.
4. Start and run band of interest into the well.
5. Stop the run and remove DNA from well via pipette.

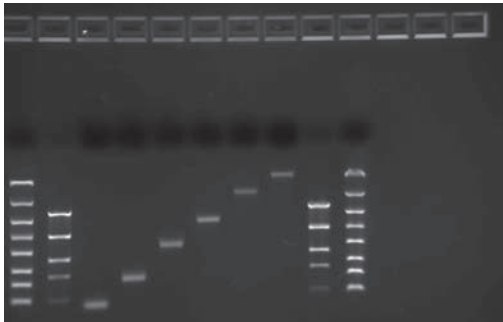


# FlashGel™ System for Recovery

Continued

- **No DNA Damaging UV or Mutagenic Stain Exposure**
  - Visible light from the compact FlashGel™ Dock illuminates the recovery wells without damage to the DNA or hazard to the user
  - The proprietary stain in the FlashGel™ Cassettes enables separation and recovery of very small quantities of DNA, and minimizes user exposure to potential mutagens
- **Efficient Recovery, Free from Inhibitors**
  - Samples are recovered at 80%–100% efficiency, are free of inhibitors, and ready for subsequent re-amplification, cloning, or other techniques, without additional clean-up steps

## DNA Size Range on the FlashGel™ System for Recovery



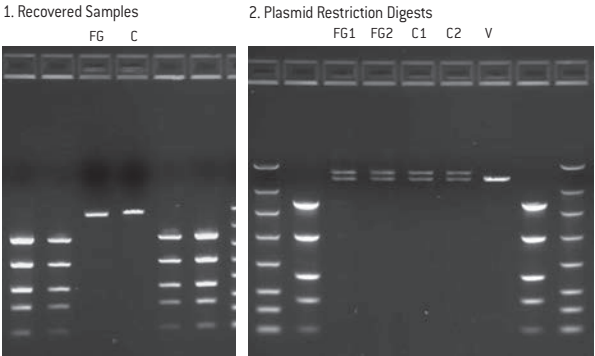
Samples were separated and recovered on a FlashGel™ Recovery Cassette. 3 µL aliquots of recovered samples consisting of 100 ng of fragments ranging from 50 bp to 4000 bp separated on a 1.2% FlashGel™ DNA Cassette and compared to the FlashGel™ DNA Marker 100 bp–4 kb and the FlashGel™ QuantLadder.

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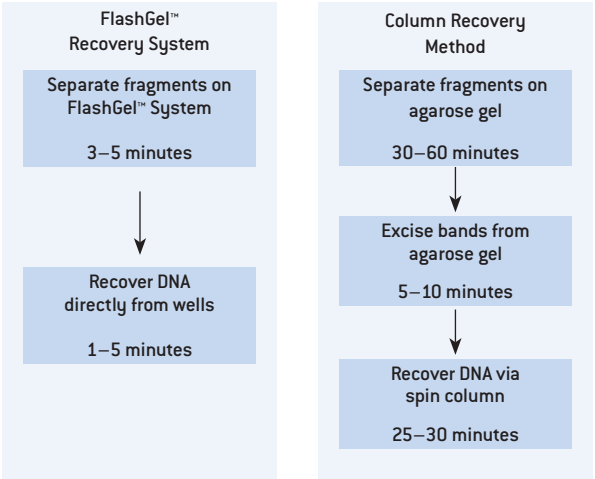
🔗 Page 314 (specifications)

🌐 [www.flashgel.com](http://www.flashgel.com)

## Recovery Efficiency on the FlashGel™ System for Recovery



Plasmid DNA (pBr322) was subjected to restriction enzyme double digestion using *Pst*I and *Bam*HI. Samples of the restricted DNA were separated and 3.2 kb fragments were recovered using the FlashGel™ Recovery System (FG) or spin column kits (C1 and C2). Image 1 compares 5% of each recovered sample. Aliquots of the recovered samples were ligated into *Pst*I/*Bam*HI double digested pUC19 vector (V). Samples of the ligation reactions were transformed into *E.coli* competent cells. The number of colonies obtained with both samples were very similar. Image 2 shows examples of *Pst*I/*Bam*HI cut plasmid samples from two colonies from each sample. V shows a restricted sample of vector with no insert.



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FlashGel™ System for RNA	316
FlashGel™ Camera	315

## FlashGel™ System for RNA

Rapid, Sensitive, Convenient RNA Analysis

The FlashGel™ System for RNA is the ideal tool for rapid verification of sample integrity prior to downstream analysis. High quality, intact RNA is essential for consistent results in gene expression, Northern analysis, cDNA library construction and cDNA labeling for microarrays.

- Get results in 30 minutes or less
- Detect <10 ng RNA per band
- Avoid hazardous reagents and contaminating RNases

The FlashGel™ System completes RNA analysis in less than 30 minutes and requires <10 ng total RNA for detection.

### Applications

- Verification and analysis of total RNA
- Quick checks of native RNA
- Checking for RNA degradation and mRNA purity

### Rapid RNA Analysis Procedure

1. Insert cassette into FlashGel™ Dock.
2. Pre-load wells with RNase-free water.
3. Load samples.
4. Plug in and turn on light and electrophoresis voltage.
5. Run for 8 minutes.
6. Turn off voltage and hold for 10 minutes, or until RNA bands are stained to the desired intensity.
7. Photograph.

### Exquisitely Sensitive Detection

- The FlashGel™ System for RNA offers the detection sensitivity of a chip system, without the cost, and rivals the best RNA stains (SYBR® Green and GelStar® Stains), without direct handling of stain solutions. RNA quantities < 10 ng per band are clearly detected on the FlashGel™ System, conserving precious RNA samples

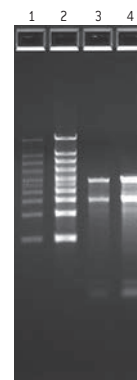
### Clean, Enclosed System

- FlashGel™ RNA Cassettes fully enclose the gel, stain and running buffer, eliminating user exposure to hazardous reagents, and protecting samples from contaminating RNases. RNA cassettes are designed for performance and purity, and are guaranteed RNase free. The FlashGel™ Dock provides electrophoresis and visualization of both DNA and RNA cassettes

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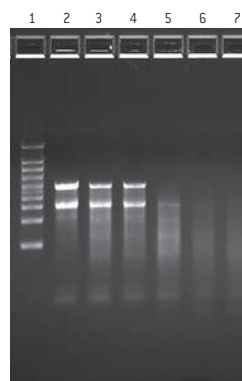
 Page 314 (specifications)

### Separation of Total RNA on the FlashGel™ System for RNA



Samples of RNA Marker (Lonza) (lanes 1 and 2) and *E. coli* total RNA (lanes 3 and 4) contain 50 ng (lanes 1 and 3) or 250 ng (lanes 2 and 4) of RNA per 5 µL load. Samples prepared with Formaldehyde Sample Buffer (Lonza) and denatured 5 minutes at 65°C. FlashGel™ RNA Cassette run for 8 minutes, followed by a 20 minute hold prior to imaging.

### Checking Sample Quality with the FlashGel™ System for RNA



Sample degradation is visible at low levels on the FlashGel™ System for RNA. FlashGel™ RNA Cassette run for 8 minutes at 225 V, followed by 20 minute hold prior to imaging. Lane 1: RNA marker (Lonza); Lane 2: 250 ng *E. coli* Total RNA; Lanes 3–7: *E. coli* Total RNA incubated with increasing levels of RNase A. Intact, denatured RNA shows sharp, clear bands on the FlashGel™ System. Partially degraded RNA has a smeared appearance, and completely degraded RNA appears as a low molecular weight smear.

 [www.flashgel.com](http://www.flashgel.com)

## FlashGel™ Camera

From Benchtop to Desktop in 5 Minutes

Capture data from The FlashGel™ System and say goodbye to darkrooms and UV light. Complete separation and documentation safely, at your bench in minutes. This simple digital camera in an enclosed hood connects directly to your laptop or PC via USB. Simply click a button to capture the desired image to a file.

### ■ Real time Separation and Documentation

- Complete gel run and image capture in just 5 minutes
- Photograph gels at the bench without UV light

### ■ The FlashGel™ Camera Offers

- Sharp, clear high-resolution images
- Simple user interface
- Small, compact design
- Optimized exposure for FlashGel™ Cassettes



Interface of FlashGel™ software with camera. Simply click the camera icon on the dock image to save the gel picture or the printer icon to print.

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#### Camera Specifications

Hood dimensions:	10 cm [W] × 11 cm [L] × 16 cm [H]
Camera type:	Digital
Image file type:	.jpg, .tif, .bmp

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FlashGel™ System for Recovery	316

## FlashGel™ Specifications

Simple User Interface Right from Your Laptop or PC

#### Cassette and Dock Specifications

Optimal separation and recovery range:	DNA: 1.2% agarose: 50 bp–4,000 bp
	DNA: 2.2% agarose: 10 bp–1,000 bp
	RNA: 1.2% agarose: 0.5 kb – 9.0 kb
Separation of fragments >4 kb will be improved by running longer at lower voltage.	
Storage:	DNA: Room temperature for 5 months from date of manufacture.
	RNA: Room temperature for 3 months from date of manufacture.
	Shelf life may be extended with refrigerated storage.
Well volume:	12*1-well: 5 µL
	16*1-well: 5 µL
	8*1-well: 12 µL
Gel size:	70 mm [L] × 84 mm [W] × 2 mm [H]
Cassette size:	115 mm [L] × 107 mm [W] × 17 mm [H]
Dock size:	134 mm [L] × 120 mm [W] × 54 mm [H]



FlashGel™ Dock and Cassettes

**NOTE:** Some components and technology of the FlashGel™ System are sold under licensing agreements. The nucleic acid stain in this product is manufactured and sold under license from Molecular Probes, Inc., and the FlashGel™ Cassette is sold under license from Invitrogen IP Holdings, Inc, and is for use only in research applications or quality control. It is covered by pending and issued patents. The FlashGel™ Dock technology contains Clare Chemical Research, Inc. Dark Reader® transilluminator technology and is covered under US Patents 6,198,107; 6,512,236; and 6,914,250. The electrophoresis technology is licensed from Temple University and is covered under US Patent 6,905,585.

## FlashGel™ System Power Supply

Simple, Compact and Powerful

Designed to complement the FlashGel™ Dock, this new power supply has simple program settings and is half the size of other standard power supply units. This 300 volt FlashGel™ Power Supply is capable of powering most standard horizontal and vertical electrophoresis systems.

### ■ The FlashGel™ Power Supply offers

- Compact size
- Simple easy-to-use interface
- Multiple jacks to run up to two FlashGel™ Docks at once
- Built-in timer
- Easy to read digital display
- Toggle between volts, current, and time



Physical Specifications	
Terminal Pairs	2 Pairs
Display	3 digit LED
Construction material	Polycarbonate housing and aluminum bottom plates
Unit Dimension	140 × 191 × 84mm
Weight	~1 kg

Electrical Specifications	
Output Voltage / Inc.	10–300V / 1V
Output Current / Inc.	10–400mA / 1mA
Max. Watt	60W
Rated Voltage	100–240 V, 50–60 Hz, 2A
Output Type	Constant Voltage or Constant Current
Control	Microprocessor controller
Timer	1–999 minutes with alarm, continuous
Safety Device	No load detection; shrouded plugs and sockets

### Ordering Information – FlashGel™ System

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
<b>FlashGel™ System</b>				
57040	57040	FlashGel™ Camera	Includes: Camera, hood enclosure USB cable and FlashGel™ Capture Software, for use with FlashGel™ Dock	each
57025	57025	FlashGel™ Dock	For use with all FlashGel™ Cassette types	each
50462	50462	FlashGel™ Loading Dye (5X)	Contains xylene cyanol	5 × 1 mL
57067	57067	FlashGel™ System	Includes: FlashGel™ Dock, FlashGel™ Camera, 9 packs FlashGel™ DNA Cassettes (1.2%, 12' 1-well single-tier), FlashGel™ Loading Dye and FlashGel™ DNA Marker	each
57068	57068	FlashGel™ Power Supply	For use with all FlashGel™ Cassette types	each
57062	57062	FlashGel™ Device Pack	Includes FlashGel™ Dock, FlashGel™ Power Supply, and FlashGel™ Camera	
57069	57069	FlashGel™ Power Supply Pack	Includes FlashGel™ Dock and FlashGel™ Power Supply	
57065	57065	FlashGel™ Camera Pack	Includes FlashGel™ Dock and FlashGel™ Camera	

## FlashGel™ System – Ordering Information

Continued

## Ordering Information – FlashGel™ System

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
<b>FlashGel™ System For DNA</b>				
57063	57063	FlashGel™ DNA Kit	Includes FlashGel™ DNA Cassettes (1.2% 12 + 1-well single tier 9 pack), FlashGel™ Loading Dye, and FlashGel™ Marker 100 bp – 4 kb	Kit
57023	57023	FlashGel™ DNA Cassettes	12 + 1 single-tier, 9 per pack	1.2% agarose, 12 + 1 single-tier
57029	57029	FlashGel™ DNA Cassettes	16 + 1 double-tier (34-well), 9 per pack	1.2% agarose, 16 + 1 double-tier (34-well)
57031	57031	FlashGel™ DNA Cassettes	12 + 1 single-tier, 9 per pack	2.2% agarose, 12 + 1 single-tier
57032	57032	FlashGel™ DNA Cassettes	16 + 1 double-tier (34-well), 9 per pack,	2.2% agarose, 16 + 1 double-tier (34-well)
57034	57034	FlashGel™ DNA Marker, 100 bp – 3 kb	Ready-to-load, recommended for double-tier cassettes, 100 applications	500 µL
50473	50473	FlashGel™ DNA Marker, 100 bp – 4 kb	Ready-to-load, recommended for 1.2% cassettes, 100 applications	500 µL
57033	57033	FlashGel™ DNA Marker, 50 bp – 1.5 kb	Ready-to-load, recommended for 2.2% cassettes, 100 applications	500 µL
57026	57026	FlashGel™ DNA Starter Kit	Includes FlashGel™ Dock, FlashGel™ Loading Dye, FlashGel™ DNA Cassettes (1.2%, 12 + 1-well single-tier, 9 packs), FlashGel™ DNA Marker 100 bp–4 kb	each
50462	50462	FlashGel™ Loading Dye (5X)	Contains xylene cyanol	5 × 1 mL
50475	50475	FlashGel™ QuantLadder, 100 bp (3 ng) – 1.5 kb (30 ng)	Ready-to-load, 50 applications	250 µL
<b>FlashGel™ System for Recovery</b>				
57064	57064	FlashGel™ Recovery Kit	Includes FlashGel™ Recovery Cassettes 1.2%, 8 + 1-well double tier 9 pack, FlashGel™ Recovery Buffer, FlashGel™ Loading Dye FlashGel™ QuantLadder, and Visualization Glasses	Kit
57060	57060	FlashGel™ Recovery Buffer	Ready-to-use	2 × 500 µL
57022	57022	FlashGel™ Recovery Cassettes	8 + 1 double-tier (18-well)	2.2% agarose, 9 per pack
57051	57051	FlashGel™ Recovery Cassettes	8 + 1 double-tier (18-well)	1.2% agarose, 9 per pack
57050	57050	FlashGel™ Recovery Starter Kit	Includes FlashGel™ Recovery Cassettes (1.2%, 8 + 1-well double-tier, 9 packs), FlashGel™ Loading Dye, FlashGel™ Recovery Buffer, FlashGel™ QuantLadder, Visualization Glasses, Control Fragment. Dock sold separately.	Kit
57061	57061	FlashGel™ Visualization Glasses	For use with all FlashGel™ Cassette types	each
<b>FlashGel™ System for RNA</b>				
57027	57027	FlashGel™ RNA Cassettes	12 + 1 single-tier, 9 per pack	1.2% agarose, 9 per pack
57028	57028	FlashGel™ RNA Cassettes	16 + 1 double-tier (34-well)	1.2% agarose, 9 per pack
50577	50577	FlashGel™ RNA Marker	Available sizes: 0.5/1.0/1.5/3.0/5.0/9.0 kb	50 µL
57024	57024	FlashGel™ System for RNA Starter Pack	Includes FlashGel™ RNA Cassettes 1.2% 12 + 1-well single tier 9 packs RNA Marker, Sample Buffer, and Molecular Biology Water	Kit
50571	50571	Formaldehyde Sample Buffer	RNA denaturing sample buffer, contains bromophenol blue and xylene cyanol	5 × 1 mL
50475	50475	FlashGel™ QuantLadder, 100 bp (3 ng) – 1.5 kb (30 ng)	Ready-to-load, 50 applications	250 µL

NOTE: Due to varying storage requirements, kit components may arrive in separate shipping containers.

 Page 476 (detailed marker sizes) [www.flashgel.com](http://www.flashgel.com)



# Reliant™ Minigels

Versatile Minigels for Routine DNA Separation and Recovery



Reliant™ Gels are versatile and convenient minigels for nearly any application. Each gel is precision manufactured for rapid and reproducible resolution of DNA sizes from 8 bp to 10 kb. Reliant™ Gels are available in a variety of well formats and agarose concentrations, in TAE and TBE buffer and most are prestained with ethidium bromide. All Reliant gels can be prestained with Ethidium Free stain upon request.

### Benefits

- Manufactured with high quality SeaKem® and NuSieve™ Agarose for reliability
- Compatible with most minigel chambers
- Several versatile off the shelf formats with custom options available
- Most formats and sizes are available stained with GelGreen™ Ethidium Bromide free stain

### Applications

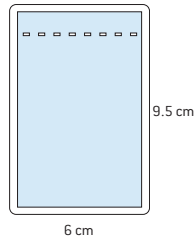
- DNA analysis
- Restriction digests
- Recovery
- PCR and RT-PCR
- Cloning and Blotting

### Performance and Quality Tests

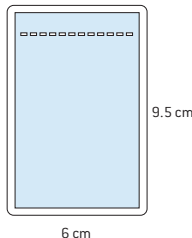
- DNase: no activity detected
- Gel performance: sharp bands and low background fluorescence

18°C to 26°C for 6–12 months depending upon agarose concentration

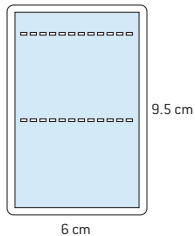
#### 8-well



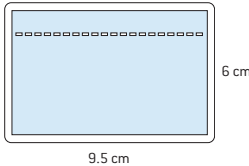
#### 12-well



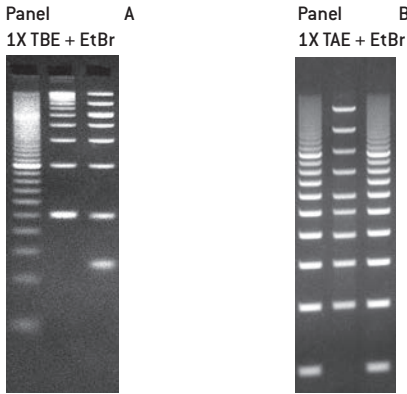
#### 24-well



#### 20-well



## Performance of Reliant™ Minigels



**Panel A.** 20 bp Ladder (1 µL), 100 bp Ladder (1 µL) and 50–1000 bp marker (2.5 µL) (all Lonza), loaded and run in a 4% NuSieve™ 3:1 Plus Reliant™ Gel containing ethidium bromide. Gel was run at 7 V/cm for 50 minutes using 1X TBE buffer containing 0.5 µg/mL ethidium bromide.  
**Panel B.** A repeating pattern of 500 bp DNA ladder (1 µL/lane) and 1–10 kb DNA marker (2.5 µL/lane) (Lonza) run in a 1% SeaKem® Gold Reliant™ Gel containing ethidium bromide. Gel was run at 5 V/cm for 60 minutes using 1X TAE buffer containing 0.5 µg/mL ethidium bromide.

Specifications	
Gels per box:	20
Gel dimensions:	6.0 cm × 9.5 cm
Gel thickness:	5.5 mm
Tray dimensions:	6.8 cm × 10.2 cm
Well volume:	<15 µL





# Reliant™ Minigels

Continued

## Ordering Information – SimplyLoad™ Ladders

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Range	Agarose	Size
<b>8-well</b>						
54801	54801	Reliant™ Minigel TAE	No stain	bp 400 ≥ 10,000	1% SeaKem® Gold Plus Agarose	8-well (20 gels/box)
54803	54803	Reliant™ Minigel TAE	With ethidium bromide (0.5 µg/mL)	bp 400 ≥ 10,000	1% SeaKem® Gold Plus Agarose	8-well (20 gels/box)
54903	54903	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 300 ≥ 8,000	1% SeaKem® Gold Plus Agarose	8-well (20 gels/box)
54925	54925	Reliant™ Minigel TAE	With ethidium bromide (0.5 µg/mL)	bp 20 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	8-well (20 gels/box)
54927	54927	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	8-well (20 gels/box)
<b>12-well</b>						
54820	54820	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 300 ≥ 8,000	1% SeaKem® Gold Plus Agarose	12-well (20 gels/box)
54821	54821	Reliant™ Minigel TAE	With ethidium bromide (0.5 µg/mL)	bp 400 ≥ 10,000	1% SeaKem® Gold Plus Agarose	12-well (20 gels/box)
54823	54823	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	12-well (20 gels/box)
54825	54825	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 100 ≥ 3,000	2% SeaKem® Gold Plus Agarose	12-well (20 gels/box)
<b>20-well</b>						
54907	54907	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 300 ≥ 8,000	1% SeaKem® Gold Plus Agarose	20-well (20 gels/box)
54928	54928	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	20-well (20 gels/box)
54938	54938	Reliant™ Minigel TBE	No stain	bp 100 ≥ 3,000	2% SeaKem® Gold Plus Agarose	20-well (20 gels/box)
54939	54939	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 100 ≥ 3,000	2% SeaKem® Gold Plus Agarose	20-well (20 gels/box)
54944	54944	Reliant™ Minigel TBE	No stain	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	20-well (20 gels/box)
<b>24-well</b>						
54813	54813	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 100 ≥ 3,000	2% SeaKem® Gold Plus Agarose	24-well (20 gels/box)
54905	54905	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 300 ≥ 8,000	1% SeaKem® Gold Plus Agarose	24-well (20 gels/box)
54929	54929	Reliant™ Minigel TBE	With ethidium bromide (0.5 µg/mL)	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	24-well (20 gels/box)



Contact Scientific Support to inquire about custom precast gels.

## Ordering Information – Supporting Products

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
54945	54945	Reliant™ Gel Reusable UV Transparent Tray	Landscape	each
54946	54946	Reliant™ Gel Reusable UV Transparent Tray	Portrait	each
50655	50655	DNA Loading Buffer (6X)	Ficoll® based with bromophenol blue and xylene cyanol	5 × 1 mL
50836	50836	AccuGENE™ 5X TBE Buffer	0.45 M Tris-borate, 0.01 M EDTA (disodium salt), pH 8.3	20 L
51216	BE51216	AccuGENE™ 50X TAE Buffer	2.0 M Tris-acetate, 0.05 M EDTA, pH 8.3	1 L
50843	BE50843	AccuGENE™ 10X TBE Buffer	0.89 M Tris-borate, 0.02 M EDTA (disodium salt), pH 8.3	1 L
50841	50841	AccuGENE™ 10X TAE Buffer	0.4 M Tris-acetate, 0.01 M EDTA (disodium salt), pH 8.0	4 L
50844	BE50844	AccuGENE™ 10X TAE Buffer	0.4 M Tris-acetate, 0.01 M EDTA (disodium salt), pH 8.0	1 L



## Latitude™ HT Gels

Precast Gels for High-throughput Separations

Latitude™ HT Precast Agarose Gels are large format agarose gels designed for high-throughput screening applications. These gels are precision manufactured for rapid, reproducible resolution of DNA sizes from 8 bp to 10 kb. Latitude™ HT Gels are available in multiple well formats (from 100–200 wells) and agarose concentrations, in TAE and TBE buffer, all prestained with ethidium bromide. All Latitude gels can be prestained with Ethidium-free stain upon request.

### Benefits

- Manufactured with high quality SeaKem® or NuSieve™ Agarose for reliability
- Versatile design allows you to run gels in most large submerged electrophoresis systems
- Multichannel pipette compatible

### Applications

- High-throughput DNA analysis
- PCR, RT-PCR and Multiplex PCR
- Genotyping
- Fingerprinting
- Library construction

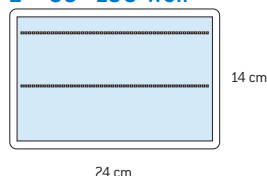
### Performance and Quality Tests

- DNase: no activity detected
- Gel performance: sharp bands and low background fluorescence
- Most formats and sizes are available stained with GelGreen™ Ethidium Bromide free stain

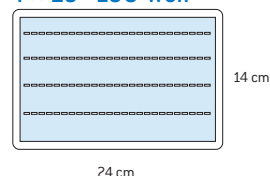
### Chamber Compatibility Information

- Latitude™ HT Gels fit most large submerged electrophoresis systems. Adaptors are available for many nonstandard systems; a complete list can be found on [www.lonza.com/latitude](http://www.lonza.com/latitude)

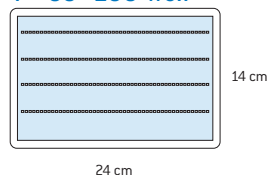
#### 2 × 50–100-well



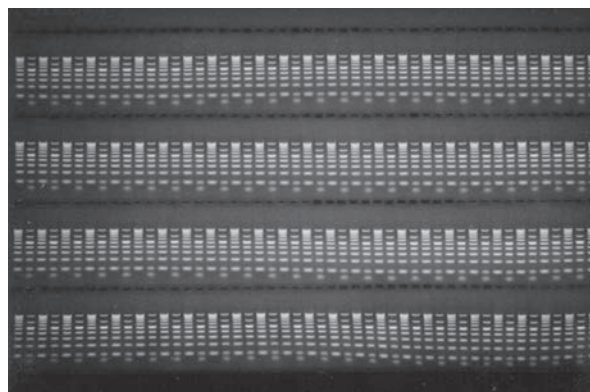
#### 4 × 25–100-well



#### 4 × 50–200-well



## Resolution of DNA Markers in a Latitude™ HT Precast Agarose Gel



Alternate loads of 50–1000 bp Marker and 100 bp Ladder (Lonza) run in a 2% SeaKem® LE Plus Agarose Gel in 1X TBE buffer containing 0.5 µg/mL ethidium bromide. Gels run at 6 V/cm, 1 hour run using the TruBand™ Anchor.

### Specifications

Gels per box:	5
Gel dimensions:	24 cm × 14 cm
Gel thickness:	6.5 mm
Ethidium bromide:	0.5 µg/mL
Tray dimensions:	25 cm × 15 cm
Well volume:	10 µL–12 µL for 50-well gels 25 µL–30 µL for 25-well gels

18°C to 26°C for 6–12 months depending upon agarose concentration

[www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)



## Latitude™ HT Gels

Continued

## Ordering Information – Latitude™ HT Precast Gel

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Separation Range	Agarose	Size
57206	57206	Latitude™ HT Precast Gel TAE	Multichannel pipette compatible (alternate well), with ethidium bromide (0.5 µg/mL)	bp 100 ≥ 3,000	2% SeaKem® LE Plus Agarose	2 × 50-wells, 100-well (5 gels/box)
57225	57225	Latitude™ HT Precast Gel TBE	Multichannel pipette compatible (alternate well), with ethidium bromide (0.5 µg/mL)	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	2 × 50-wells, 100-well (5 gels/box)
57226	57226	Latitude™ HT Precast Gel TBE	Multichannel pipette compatible (alternate well), with ethidium bromide (0.5 µg/mL)	bp 100 ≥ 2,000	2% SeaKem® LE Plus Agarose	2 × 50-wells, 100-well (5 gels/box)
57246	57246	Latitude™ HT Precast Gel TBE	Multichannel pipette compatible (consecutive well), with ethidium bromide (0.5 µg/mL)	bp 100 ≥ 2,000	2% SeaKem® LE Plus Agarose	4 × 25-wells, 100-well (5 gels/box)
57255	57255	Latitude™ HT Precast Gel TBE	Multichannel pipette compatible (consecutive well), with ethidium bromide (0.5 µg/mL)	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	4 × 25-wells, 100-well (5 gels/box)
57214	57214	Latitude™ HT Precast Gel TAE	Multichannel pipette compatible (alternate well), with ethidium bromide (0.5 µg/mL)	bp 400 ≥ 10,000	1% SeaKem® LE Plus Agarose	4 × 50-wells, 200-well (5 gels/box)
57234	57234	Latitude™ HT Precast Gel TBE	Multichannel pipette compatible (alternate well), with ethidium bromide (0.5 µg/mL)	bp 300 ≥ 8,000	1% SeaKem® LE Plus Agarose	4 × 50-wells, 200-well (5 gels/box)
57235	57235	Latitude™ HT Precast Gel TBE	Multichannel pipette compatible (alternate well), with ethidium bromide (0.5 µg/mL)	bp 8 ≥ 1,000	4% NuSieve™ 3:1 Plus Agarose	4 × 50-wells, 200-well (5 gels/box)
57236	57236	Latitude™ HT Precast Gel TBE	Multichannel pipette compatible (alternate well), with ethidium bromide (0.5 µg/mL)	bp 100 ≥ 2,000	2% SeaKem® LE Plus Agarose	4 × 50-wells, 200-well (5 gels/box)



Contact Scientific Support to inquire about custom precast gels.

## Ordering Information – Supporting Products

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
56991	56991	TruBand™ Gel Anchor		For Owl Millipede™, Shelton JSB-96, Fisher SB-2318 chambers
56993	56993	TruBand™ Gel Anchor		Standard chambers
50655	50655	DNA Loading Buffer (6X)	Ficoll® based with bromophenol blue and xylene cyanol	5 × 1 mL
50836	50836	AccuGENE™ 5X TBE Buffer	0.45 M Tris-borate, 0.01 M EDTA (disodium salt), pH 8.3	20 L
51216	BE51216	AccuGENE™ 50X TAE Buffer	2.0 M Tris-acetate, 0.05 M EDTA, pH 8.3	1 L
50843	BE50843	AccuGENE™ 10X TBE Buffer	0.89 M Tris-borate, 0.02 M EDTA (disodium salt), pH 8.3	1 L
50841	50841	AccuGENE™ 10X TAE Buffer	0.4 M Tris-acetate, 0.01 M EDTA (disodium salt), pH 8.0	4 L
50844	BE50844	AccuGENE™ 10X TAE Buffer	0.4 M Tris-acetate, 0.01 M EDTA (disodium salt), pH 8.0	1 L

## Related Products

DNA Ladders and Markers

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## Latitude™ Midigels

Versatile Medium-sized Precast Gels


Latitude™ Precast Agarose Midigels are designed for high sample throughput DNA analysis applications requiring increased resolution distance. These gels are precision manufactured for rapid and reproducible resolution of DNA sizes from 8 bp to 10 kb. Latitude™ Gels are available in a variety of well formats and agarose concentrations, in TAE and TBE buffer.

### ■ Benefits

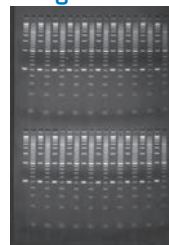
- Manufactured with high quality SeaKem® or NuSieve™ Agarose for reliability
- Latitude™ Gels fit most midigel chambers and provide optimal performance in the Latitude™ Chamber

### ■ Performance and Quality Tests

- DNase: No activity detected
- Gel performance: Sharp bands and low background fluorescence
- Most formats and sizes are available stained with GelGreen™ Ethidium Bromide free stain

 18°C to 26°C for 6–12 months depending upon agarose concentration

### Performance of the 40-well Latitude™ Precast Agarose Midigels



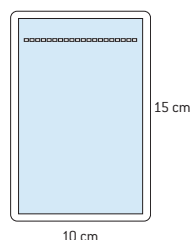
Alternate loads of 100 bp DNA ladder and Lonza 20 bp DNA ladder (Lonza) (1 µL marker/lane) run in a 4% NuSieve™ 3:1 Plus Agarose Gel in 1X TBE buffer containing 0.5 µg/mL Ethidium Bromide. 6 V/cm, 70 minute run in a 10 cm × 15 cm Latitude™ Gel Chamber using the TruBand™ Gel Anchor.

#### Specifications

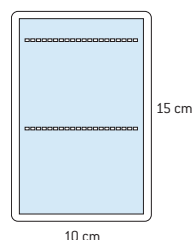
Gels per box:	8
Gel dimensions:	10 cm × 15 cm
Gel thickness:	6.0 mm
Ethidium bromide:	0.5 µg/mL
Tray dimensions:	10.4 cm × 15.6 cm
Well volume:	10 µL–12 µL



#### 20-well



#### 40-well



### Ordering Information – Latitude™ Midigel

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Separation Range	Agarose	Size
57200	57200	Latitude™ Midigel TAE	With ethidium bromide (0.5 µg/mL)	bp 400 ≥ 10,000	1% SeaKem® LE Plus Agarose	20-wells (8 gels/box)
57220	57220	Latitude™ Midigel TBE	With ethidium bromide (0.5 µg/mL)	bp 300 ≥ 8,000	1% SeaKem® LE Plus Agarose	20-wells (8 gels/box)
57210	57210	Latitude™ Midigel TAE	With ethidium bromide (0.5 µg/mL)	bp 400 ≥ 10,000	1% SeaKem® LE Plus Agarose	40-wells (8 gels/box)
57211	57211	Latitude™ Midigel TAE	With ethidium bromide (0.5 µg/mL)	bp 100 ≥ 3,000	2% SeaKem® LE Plus Agarose	40-wells (8 gels/box)
57230	57230	Latitude™ Midigel TBE	With ethidium bromide (0.5 µg/mL)	bp 300 ≥ 8,000	1% SeaKem® LE Plus Agarose	40-wells (8 gels/box)
57231	57231	Latitude™ Midigel TBE	With ethidium bromide (0.5 µg/mL)	bp 100 ≥ 2,000	2% SeaKem® LE Plus Agarose	40-wells (8 gels/box)

### Ordering Information – Supporting Products

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
56990	56990	Latitude™ Midigel Chamber	Casting accessories not available	Gel chamber
56988	56988	TruBand™ Gel Anchor	Free with your first order of Latitude™ Gels	Latitude™ Chamber
56989	56989	TruBand™ Gel Anchor	Free with your first order of Latitude™ Gels	Standard chambers

## PAGEr™ Gold TBE Precast Gels

Polyacrylamide Minigels for DNA Separation

PAGEr™ Gold TBE Precast Gels provide fine resolution of DNA fragments <2,000 bp, and are optimal for resolving 1% differences in DNA fragment size. These ready-to-use gels are specially designed for maximum user convenience. Opening the cassette requires a simple snap of the comb.

### ■ Benefits

- Easy-to-load: unique gold colored cassette and marked lanes are easy-to-see
- Easy-to-open: simple snap-open cassette does not require a special opening device

### ■ Applications

- Fine resolution of PCR products
- Oligo analysis

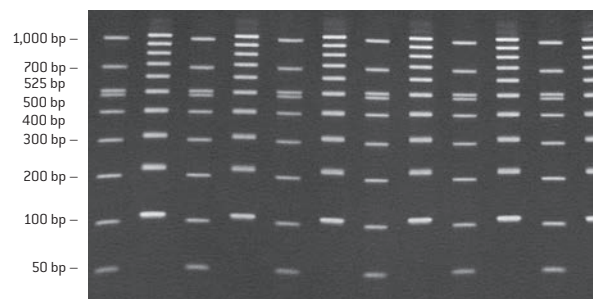
### ■ Performance and Quality Tests

- Each lot of PAGEr™ Gold TBE Gels is functionally tested
- Certificate of Analysis available upon request

### Separation Ranges for Nucleic Acids in PAGEr™ Gold TBE Gels

Polyacrylamide Concentration	Size Separation Range
6%	75 bp – 2,000 bp
10%	30 bp – 1,000 bp
4–20%	10 bp – 2,000 bp

### Performance of PAGEr™ Gold TBE Gels



Alternating lanes of the 50 bp–1,000 bp DNA marker (2 µL/lane) and 100 bp DNA ladder (1 µL/lane) (Lonza) separated on a 4–20% PAGEr™ Gold TBE Gel. Gel run at 200 V for 60 minutes, stained for 15 minutes in 0.5 µg/mL EtBr, and destained for 5 minutes.

Specifications	
Gels per box:	10
Gel dimensions:	8.3 cm × 7.1 cm × 0.1 cm 8.3 cm × 8.3 cm × 0.1 cm
Cassette thickness:	0.49 cm (9 cm × 10 cm) 0.55 cm (10 cm × 10 cm)
Cassette dimensions:	9 cm × 10 cm (L × W) 10 cm × 10 cm (L × W)
Well volume:	10-well – 32 µL 12-well – 20 µL 16-well – 14 µL

2°C to 8°C for 3.5 months from date of manufacture

[www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### Ordering Information – PAGEr™ Gold TBE Gels

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Range	Size
<b>10-well</b>					
58525	58525	PAGEr™ Gold TBE Gels	Gel concentration: 6%, 10-well, 9 cm × 10 cm	75–2000 bp	10 gels/box
58526	58526	PAGEr™ Gold TBE Gels	Gel concentration: 10%, 10-well, cassette size: 9 cm × 10 cm	25–200 kDa	10 gels/box
58527	58527	PAGEr™ Gold TBE Gels	Gel concentration: 4–20% gradient, 10-well, 9 cm × 10 cm	10–2000 bp	10 gels/box
59525	59525	PAGEr™ Gold TBE Gels	Gel concentration: 6%, 10-well, 10 cm × 10 cm	75–2000 bp	10 gels/box
59526	59526	PAGEr™ Gold TBE Gels	Gel concentration: 10%, 10-well, cassette size: 10 cm × 10 cm	25–200 kDa	10 gels/box
59527	59527	PAGEr™ Gold TBE Gels	Gel concentration: 4–20% gradient, 10-well, 10 cm × 10 cm	10–2000 bp	10 gels/box
<b>12-well</b>					
58528	58528	PAGEr™ Gold TBE Gels	Gel concentration: 6%, 12-well, 9 cm × 10 cm	75–2000 bp	10 gels/box
58530	58530	PAGEr™ Gold TBE Gels	Gel concentration: 4–20% gradient, 12-well, 9 cm × 10 cm	10–2000 bp	10 gels/box
59528	59528	PAGEr™ Gold TBE Gels	Gel concentration: 6%, 12-well, 10 cm × 10 cm	75–2000 bp	10 gels/box
59529	59529	PAGEr™ Gold TBE Gels	Gel concentration: 10%, 12-well, cassette size: 10 cm × 10 cm	25–200 kDa	10 gels/box
59530	59530	PAGEr™ Gold TBE Gels	Gel concentration: 4–20% gradient, 12-well, 10 cm × 10 cm	10–2000 bp	10 gels/box
<b>16-well</b>					
58532	58532	PAGEr™ Gold TBE Gels	Gel concentration: 10%, 16-well, cassette size: 9 cm × 10 cm	30–1000 bp	10 gels/box
58533	58533	PAGEr™ Gold TBE Gels	Gel concentration: 4–20% gradient, 16-well, 10 cm × 10 cm	10–2000 bp	10 gels/box
59531	59531	PAGEr™ Gold TBE Gels	Gel concentration: 6%, 16-well, 10 cm × 10 cm	75–2000 bp	10 gels/box
59532	59532	PAGEr™ Gold TBE Gels	Gel concentration: 10%, 16-well, cassette size: 10 cm × 10 cm	25–200 kDa	10 gels/box
59533	59533	PAGEr™ Gold TBE Gels	Gel concentration: 4–20% gradient, 16-well, 10 cm × 10 cm	10–2000 bp	10 gels/box

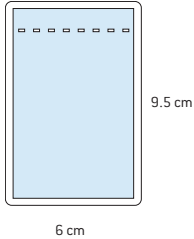
# Precast Gels and Related Products for RNA Analysis

Clean, Reliable, Guaranteed RNase-free

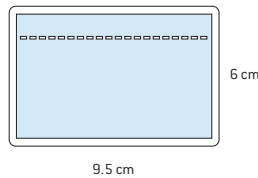
## Reliant™ Precast RNA Gels

Versatile, convenient gel options for verification of RNA integrity, northern blotting, and analysis of RNA transcripts. Reliant™ Precast RNA Agarose Gels are precision cast in 1.25% SeaKem® Gold Agarose with MOPS buffer and are guaranteed RNase-free. Our RNA markers, stains, and buffers are designed to optimize RNA separations.

### 8-well



### 20-well



### Benefits

- Guaranteed RNase free
- Compatible with many popular chambers

### Applications

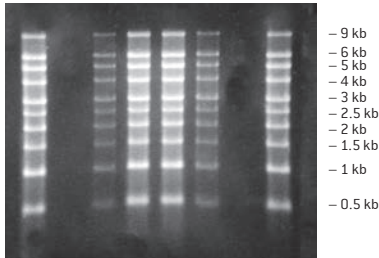
- Northern blotting
- RNA integrity checks

### Performance and Quality Tests

- Agarose: No RNase activity detected
- Gel performance: Sharp RNA bands and low background with ethidium bromide, SYBR® Green II and GelStar® Nucleic Acid Gel Stains

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

## Resolution of RNA Markers Run in a Reliant™ RNA Gel



Gel loaded with samples of RNA marker 0.5 kb–9 kb. Marker loaded at 200 ng (lanes 3 and 6) and 1 µg (lanes 1, 4, 5 and 8). Gel run at 5 V/cm for 2 hours using AccuGENE™ MOPS Buffer [1X]. RNA stained for 30 minutes using GelStar® Nucleic Acid Gel Stain [1:10,000 dilution].


## Ordering Information – Reliant™ RNA Gel System

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
54922	54922	Reliant™ RNA Gel System	1.25% SKG, MOPS, no stain, cassette size: 6 cm × 9.5 cm, 8-well	20 gels
54948	54948	Reliant™ RNA Gel System	1.25% SKG, MOPS, no stain, cassette size: 9.5 x 6 cm, 20-well	20 gels

## Precast Gels and Related Products for RNA Analysis

Continued

### Sample Buffers

 Formaldehyde: -20°C for 12 months

Ready-to-use buffers for denaturation of RNA samples for electrophoresis on Reliant™ and Latitude™ Precast RNA Gels. Ideal for northern blotting.

### Ordering Information – RNA Sample Buffers

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50571	50571	Formaldehyde Sample Buffer	RNA denaturing sample buffer, contains bromophenol blue and xylene cyanol	5 × 1 mL

### AccuGENE™ 10X MOPS Buffer

 18°C to 24°C

Specially formulated MOPS Buffer for use with Latitude™ and Reliant™ Precast Gels. Manufactured with the same reagents used in our precast gels. Buffer contains 0.2 M MOPS (free acid), 0.05 M sodium acetate, 0.01 M EDTA (disodium salt), and 0.01 M EGTA (free acid), pH 7.0.


### Ordering Information – AccuGENE™ 10X MOPS Buffer

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Storage Conditions	Size
50876	50876	AccuGENE™ 10X MOPS Buffer	0.2 M MOPS (free acid), 0.05 M sodium acetate, 0.01 M EDTA (disodium salt), 0.01 M EGTA (free acid), pH 7.0. No detectable RNase activity	18°C to 24°C	1 L

### RNA Marker 0.5–9 kb

 -80°C for 24 months or -20°C for 6 months

RNA Markers 0.5–9 kb suitable for sizing single stranded RNA in glyoxal or formaldehyde denaturing systems. RNA marker consists of ten RNA transcripts: 0.5, 1, 1.5, 2, 2.5, 3, 4, 5, 6, and 9 kb in length. Markers can be denatured with standard procedures, and visualized on Northern blots with labeled lambda sequence. Detect 4 µg with ethidium bromide, or smaller quantities with GelStar® or SYBR® Green II Gel Stains.

 Page 327–328 (detailed marker sizes)

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### Ordering Information – FlashGel™ RNA Marker

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50575	50575	FlashGel™ RNA Marker	RNA Marker (0.5 to 9 kb) 250 µL (50 µg)	250 µL

Related Products	Page
FlashGel™ System for RNA	316

More Precast Gels and Related Products on the next page.




## Precast Gels and Related Products for RNA Analysis

Continued

### GelStar® Nucleic Acid Gel Stain

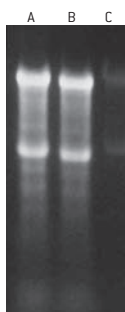
GelStar® Nucleic Acid Gel Stain is a fast-acting, fluorescent stain that is up to 15 times more sensitive than Ethidium Bromide for RNA detection.

- Detects 3 ng of RNA or 20 pg of dsDNA

 [Page 329](#) (detailed product information)

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### RNA Detection with GelStar® Stain



Samples of *E. coli* total RNA were denatured using the following denaturants: Lane A: Formaldehyde/Formamide; Lane B: Formamide; Lane C: Glyoxal. Samples were loaded at 2 µg/lane for the formaldehyde/formamide and formamide only denatured samples, and 4 µg/lane for the glyoxal denatured samples. Reliant™ RNA Precast Agarose Gels were run at 7 V/cm for 40 minutes in 1X MOPS Buffer and post stained with GelStar® Gel Stain and photographed on the Clare Chemical Research, Inc., Dark Reader® Transilluminator.

### Ordering Information – GelStar® Nucleic Acid Gel Stain 10,000X

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Storage Conditions	Size
50535	50535	GelStar® Nucleic Acid Gel Stain 10,000X	Supplied as a 10,000X concentrated solution in DMSO	-20°C	2 × 250 µL
50536	50536	SYBR® Green Gel Stain Photographic Filter	Wratten® #9	18°C to 26°C	3 inch square

Product licensed from Molecular Probes, Inc.

### SYBR® Green II Nucleic Acid Gel Stain

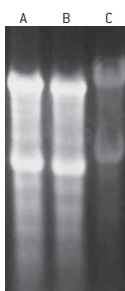
SYBR® Green II Nucleic Acid Gel Stain is a highly sensitive fluorescent stain that is ideal for detection of RNA.

- Detects 2 ng of RNA or 100 pg of dsDNA

 [Page 330](#) (detailed product information)

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### RNA Detection with SYBR® Green II Stain



Samples of *E. coli* total RNA were denatured using the following denaturants: Lane A: Formaldehyde/Formamide; Lane B: Formamide; Lane C: Glyoxal. Samples were loaded at 2 µg/lane for the formaldehyde/formamide and formamide only denatured samples, and 4 µg/lane for the glyoxal denatured samples. Reliant™ RNA Precast Agarose Gels were run at 7 V/cm for 40 minutes in 1X MOPS Buffer and post stained with SYBR® Green II Gel Stain and photographed on the Clare Chemical Research, Inc., Dark Reader® Transilluminator.

### Ordering Information – SYBR® Green II Nucleic Acid Gel Stain

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Storage Conditions	Size
50522	50522	SYBR® Green II Nucleic Acid Gel Stain	Supplied as a 10,000X concentrated solution in DMSO	-20°C	2 × 500 µL
50523	50523	SYBR® Green II Nucleic Acid Gel Stain	Supplied as a 10,000X concentrated solution in DMSO	-20°C	10 × 50 µL
50530	50530	SYBR® Green Gel Stain Photographic Filter	Wratten® #15	18°C to 26°C	3 inch square

Product licensed from Molecular Probes, Inc.

## Markers, Stains and Buffers

Optimal Performance and Convenience

Great performance starts with high quality agarose and gels, but for complete assurance, you need to use high quality markers, ladders, stains, and buffers. We support a broad offering of products that complement and match the performance of our agarose and precast gels.

Rapidly estimating fragment size requires clear sharp banding patterns on each and every gel. We offer two types of ladders and markers: Standard and SimplyLoad™. Standard markers and ladders are ready to dilute prior to loading your gel, while our convenient SimplyLoad™ Ladders are premixed, ready for direct loading. Our DNA quantitation ladders are ideal for the accurate estimation of molecular mass of fragments from 10 ng to 100 ng.

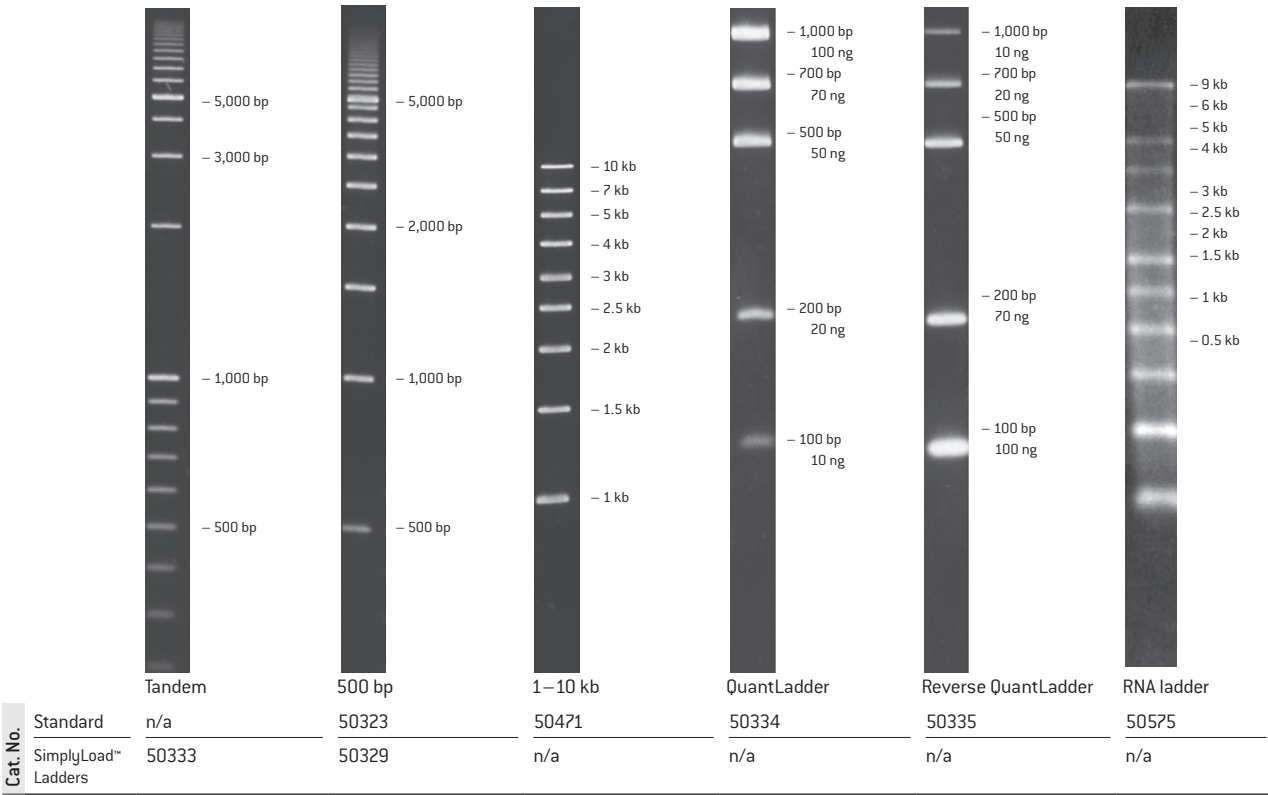
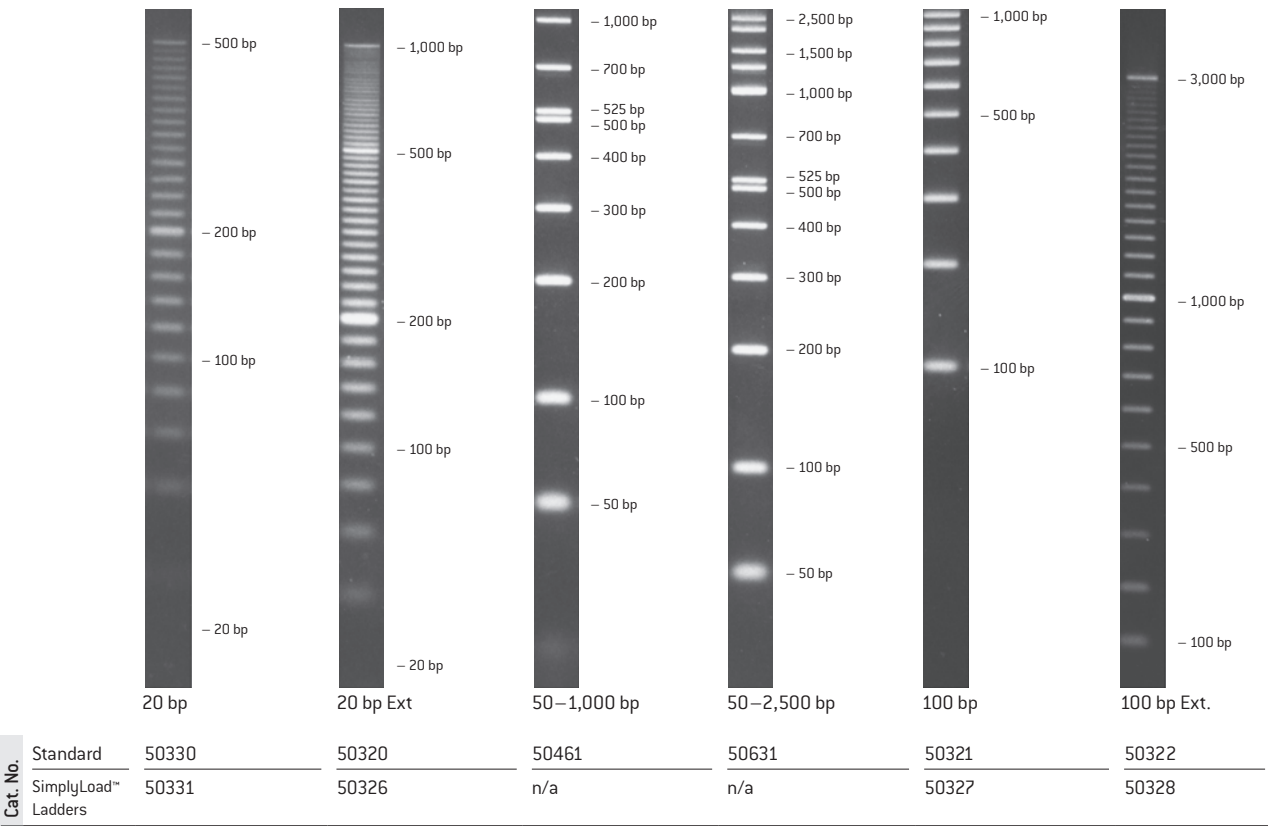
Seeing all of your data is critical to the overall success of your experiment. GelStar® Nucleic Acid Gel Stain clearly detects fragments down to 20 pg of DNA. Maximize your performance by adding the stain directly to your gel prior to casting or post-stain your gel. We also offer SYBR® Green Nucleic Acid Gel Stains.

Finally, we offer a complete line of AccuGENE™ Electrophoresis and Molecular Biology Buffers to support your research. Our AccuGENE™ Buffers are formulated to optimize performance of our agarose and precast gel products.




# DNA Ladders and Markers

Sizing Made Easy



SimplyLoad™ Ladders are supplied in ready-to-load concentrations.


 Page 476 (detailed band size information)

## DNA Ladders and Markers

Continued

**Standard Ladders and Markers** are ready-to-dilute prior to loading on your gel. Plasmid-free to ensure minimal background.

**SimplyLoad™ Ladders** are supplied ready-to-load on your gel. No need for mixing, heating or diluting prior to loading. Plasmid-free to ensure minimal background.

 Standard Ladders and Markers: 4°C or -20°C  
SimplyLoad™ Ladders: 4°C

### Ordering Information – Standard Ladders and Markers

Cat. No. NA	Cat. No. EU	Product Name	Range	Applications	Size
<b>Standard Ladders</b>					
50320	50320	20 bp Extended Range DNA Ladder	20 bp – 1,000 bp	100	150 µL
50321	50321	100 bp DNA Ladder	100 bp – 1,000 bp	100	160 µL
50322	50322	100 bp Extended Range DNA Ladder	100 bp – 3,000 bp	100	150 µL
50323	50323	500 bp DNA Ladder	500 bp – 8,000 bp	200	300 µL
50330	50330	20 bp DNA Ladder	20 bp – 500 bp	100	150 µL
<b>Standard Quantitation Ladders</b>					
50334	50334	DNA QuantLadder	100 bp – 1,000 bp	50	125 µL
50335	50335	DNA Reverse QuantLadder	100 bp – 1,000 bp	50	125 µL
<b>Standard DNA Ladders</b>					
50461	50461	50 bp DNA Marker	50 bp – 1,000 bp	50	250 µL
50471	50471	1kb DNA Marker	1 kb – 10 kb	100	2 × 250 µL
50631	50631	50 bp DNA Marker	50 bp – 2,500 bp	50	250 µL

### Ordering Information – SimplyLoad™ Ladders

Cat. No. NA	Cat. No. EU	Product Name	Range	Applications	Size
<b>SimplyLoad™ DNA Ladder</b>					
50326	50326	SimplyLoad™ 20 bp Extended Range DNA Ladder	20 bp – 1,000 bp	100	500 µL
50327	50327	SimplyLoad™ 100 bp DNA Ladder	100 bp – 1,000 bp	100	500 µL
50328	50328	SimplyLoad™ 100 bp Extended Range DNA Ladder	100 bp – 3,000 bp	100	500 µL
50329	50329	SimplyLoad™ 500 bp DNA Ladder	500 bp – 8,000 bp	100	500 µL
50331	50331	SimplyLoad™ 20 bp DNA Ladder	20 bp – 500 bp	100	500 µL
50333	50333	SimplyLoad™ Tandem DNA Ladder	100 bp – 12,000 bp	100	500 µL

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## GelStar® Nucleic Acid Gel Stain

Exquisitely Sensitive In-gel Stain for DNA and RNA


GelStar® Nucleic Acid Gel Stain is a highly sensitive fluorescent stain for detecting both DNA and RNA. Add GelStar® Stain to your agarose solution prior to casting, or post-stain your gels. GelStar® Stain exhibits exceptional signal-to-noise ratio with minimal background.

### ■ Benefits

- **Maximum sensitivity** – Detect as little as 20 pg of dsDNA or 3 ng of RNA
- **Versatile** – Use for agarose or polyacrylamide gel electrophoresis, ideal alternative to silver staining
- **Ultimate user flexibility** – Add GelStar® Stain prior to gel casting or post-stain, no destaining required
- Complete staining solution for all types of nucleic acids
- Detect fragments with either a standard 300 nm UV transilluminator or the Clare Chemical Research, Inc., Dark Reader® Transilluminator

### ■ Applications

- DNA and RNA detection
- SSCP and heteroduplex analysis

 -20° C for stain  
18°C to 26°C for photographic filter

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

Stain and Method	ssDNA	dsDNA
GelStar® Stain – in gel	25 pg	20 pg
Ethidium bromide, no destain	1.25 ng	350 pg
Ethidium bromide, destain	350 pg	100 pg
SYBR® Green I or II Stain	60 pg	20–30 pg

The FlashGel™ System includes gel cassettes prestained with a similar high-sensitivity stain. Refer to page 310–316

### GelStar® Gel Stain Photographic Filter

- Use for optimal sensitivity with black and white film
- Suitable for use with most Polaroid® Documentation or Camera Systems

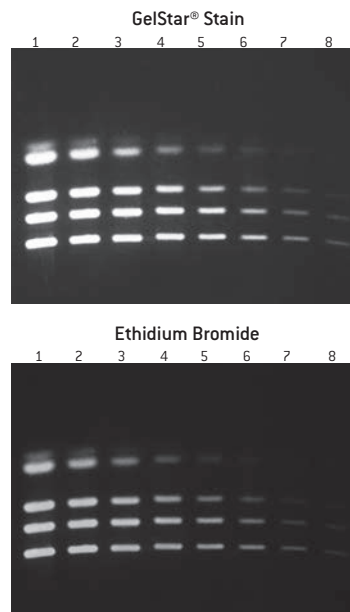
### Ordering Information – GelStar® Nucleic Acid Gel Stain 10,000X

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Storage Conditions	Size
50535	50535	GelStar® Nucleic Acid Gel Stain 10,000X	Supplied as a 10,000X concentrated solution in DMSO	-20°C	2 × 250 µL
50536	50536	SYBR® Green Gel Stain Photographic Filter	Wratten® #9	18°C to 26°C	3 inch square

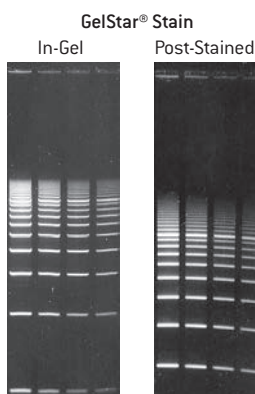
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### GelStar® Stain Versus Ethidium Bromide



Serial dilution of SimplyLoad™ DNA QuantLadder on 2% Reliant™ Precast Gels post-stained with 1X GelStar® Stain (top) or 0.5 µg/mL ethidium bromide (bottom) for 45 minutes.



Lonza's 500 bp DNA Ladder was separated on 1% SeaKem® GTG™ Agarose gels 20 cm long, 4 mm thick, run in 1X TBE buffer [Prepared from Lonza's AccuGENE™ 10X TBE Buffer] at 6 V/cm for 3 hours. GelStar® Stain was diluted 1:10,000 and added directly to the agarose or the gel was post stained for 30 minutes in a 1:10,000 dilution of GelStar® Stain in buffer. Lane 1: 10 ng DNA/band; Lane 2: 5 ng DNA/band; Lane 3: 2.5 ng DNA/band; Lane 4: 1.25 ng DNA/band.

## SYBR® Green Nucleic Acid Gel Stains

Sensitive Fluorescent Stains for DNA and RNA

SYBR® Green Nucleic Acid Gel Stains are fluorescent stains for detecting DNA and RNA, exhibiting excellent signal-to-noise ratio with minimal background. SYBR® Green Stains are more sensitive than standard stains, making them convenient alternatives to silver staining and radioisotopes. For maximum detection, gels should be post-stained and photographed with the SYBR® Green Photographic Filter.

### SYBR® Green I Stain

- Detects as little as 60 pg of dsDNA and 1 ng oligonucleotides
- Optimal for analysis of PCR products in gels, apoptosis studies, and heteroduplex analysis

### SYBR® Green II Stain


- Detects 100 pg of ssDNA and 2 ng of RNA
- Optimal for RNA gel electrophoresis and SSCP analysis

### SYBR® Green Gel Stain Photographic Filter

- Required for optimal sensitivity with black and white film
- Suitable for use with most Polaroid® Systems

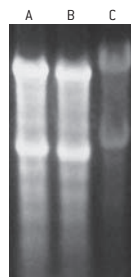
### ■ Applications

- DNA and RNA detection
- SSCP and heteroduplex analysis

 -20° C for stain  
18° C to 26° C for photographic filter

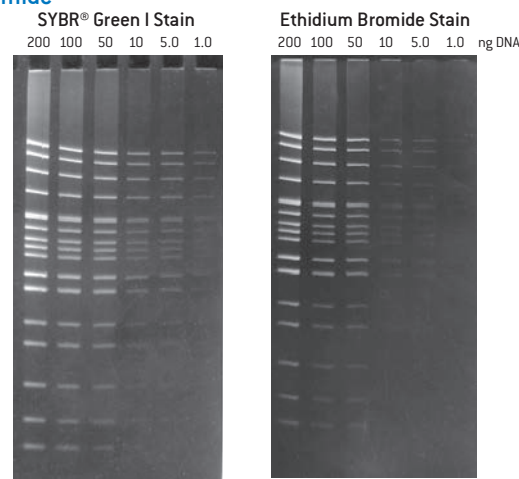
 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### RNA Detection with SYBR® Green II Stain



Samples of *E. coli* total RNA were denatured using the following denaturants: Lane A: Formaldehyde/Formamide; Lane B: Formamide; Lane C: Glyoxal. Samples were loaded at 2 µg/lane for the formaldehyde/formamide and formamide only denatured samples, and 4 µg/lane for the glyoxal denatured samples. Reliant™ RNA Precast Agarose Gels were run at 7 V/cm for 40 minutes in 1X MOPS Buffer and post stained with SYBR® Green II Gel Stain and photographed on the Clare Chemical Research, Inc., Dark Reader® Transilluminator.

### DNA Stained with SYBR® Green I Stain or Ethidium Bromide



DNA samples (pBR322 *Msp* I digest) ranging from 1 to 200 ng per lane were separated on a 10 cm × 16 cm × 0.1 cm, 4% vertical MetaPhor™ Agarose gel prepared in 1X TBE buffer. The gel was run for 1 hour at 488 V/cm. Following electrophoresis the gel was divided into two, and one half was stained with 1 µg/mL ethidium bromide while the other was stained with SYBR® Green I Stain (1:10,000 dilution of stock). Detection was achieved with standard 300 nm UV transillumination.

### Ordering Information – SYBR® Green I Nucleic Acid Stain

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Storage Conditions	Size
50513	50513	SYBR® Green I Nucleic Acid Stain	Supplied as a 10,000X concentrated solution in DMSO	-20°C	10 × 50 µL
50512	50512	SYBR® Green I Nucleic Acid Stain	Supplied as a 10,000X concentrated solution in DMSO	-20°C	2 × 500 µL
50523	50523	SYBR® Green II Nucleic Acid Gel Stain	Supplied as a 10,000X concentrated solution in DMSO	-20°C	10 × 50 µL
50522	50522	SYBR® Green II Nucleic Acid Gel Stain	Supplied as a 10,000X concentrated solution in DMSO	-20°C	2 × 500 µL
50530	50530	SYBR® Green Gel Stain Photographic Filter	Wratten® #15	18°C to 26°C	3 inch square

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## AccuGENE™ Molecular Biology Buffers

Convenient and Ready-to-use

AccuGENE™ Molecular Biology Buffers are ready-to-use solutions ideal for a wide range of molecular biology applications.

 18°C to 24°C

 [www.lonza.com /sourcebook](http://www.lonza.com/sourcebook)

### ■ Benefits

- **Reliable** – Manufactured according to strict quality control standards to ensure lot-to-lot consistency
- **High quality** – Guaranteed DNase, RNase, and protease-free
- **Efficient** – Ready-made solutions eliminate experiment preparation time
- **Flexible** – Customized solutions are available to meet individual needs

### Ordering Information –

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
51200	BE51200	AccuGENE™ Molecular Biology Water		1 L
51223	BE51223	AccuGENE™ Molecular Biology Water		10 L
51224	BE51224	AccuGENE™ Molecular Biology Water		20 L
51201	51201	AccuGENE™ 0.5 M EDTA Solution	Disodium salt, pH 8.0	100 mL
51234	51234	AccuGENE™ 0.5 M EDTA Solution	Disodium salt, pH 8.0	1 L
51202	51202	AccuGENE™ 5 M Sodium Chloride		1 L
51206	51206	AccuGENE™ 10% SDS	Monosodium salt	100 mL
51213	51213	AccuGENE™ 10% SDS	Monosodium salt	500 mL
51203	51203	AccuGENE™ 3 M Sodium Acetate	pH 5.2	500 mL
51205	BE51205	AccuGENE™ 20X SSC Buffer	3.0 M NaCl, 0.3 M sodium citrate, pH 7.0	1 L
51214	BE51214	AccuGENE™ 20X SSPE Buffer	3.0 M NaCl, 0.2 M NaH <sub>2</sub> PO <sub>4</sub> , H <sub>2</sub> O, 0.02 M EDTA, pH 7.4	1 L
51235	51235	AccuGENE™ 1X TE Buffer	0.01 M Tris, 0.001 M EDTA (disodium salt), pH 7.4	500 mL
51236	51236	AccuGENE™ 1 M Tris HCl Buffer	pH 7.2	1 L
51237	51237	AccuGENE™ 1 M Tris HCl Buffer	pH 7.4	1 L
51238	51238	AccuGENE™ 1 M Tris HCl Buffer	pH 8.0	1 L
51217	51217	AccuGENE™ LB Broth (Luria Bertani Medium)	10 g/L Bacto-Tryptone, 5 g/L Bacto-Yeast Extract, and 10 g/L NaCl	500 mL
51225	51225	AccuGENE™ 1X PBS	1.7 mM KH <sub>2</sub> PO <sub>4</sub> , 5 mM NaH <sub>2</sub> PO <sub>4</sub> , 150 mM NaCl, pH 7.4	1 L
51226	51226	AccuGENE™ 10X PBS	0.017 M KH <sub>2</sub> PO <sub>4</sub> , 0.05 M Na <sub>2</sub> HPO <sub>4</sub> , 1.5 M NaCl, pH 7.4	1 L
51229	51229	AccuGENE™ Neutralization Solution	1.5 M NaCl, 1.0 M Tris, pH 7.5	1 L



## AccuGENE™ Electrophoresis Buffers

Optimal Performance

AccuGENE™ Electrophoresis Buffers are formulated for maximum performance and convenience, and are optimized for use with our agarose and precast gels.

AccuGENE™ Buffers for DNA, RNA, and protein electrophoresis are prepared with high quality reagents and use 18 megOhm water. Products are filtered using a 0.2-micron filter, and are guaranteed DNase/RNase free.

### ■ Benefits

- **Reliable** – Manufactured according to strict quality control standards to ensure lot-to-lot consistency
- **Efficient** – Ready-to-use solutions eliminate experiment preparation time
- **Flexible** – Customized solutions are available to meet individual needs

 18°C to 24°C, 4°C for CE Buffer



### Ordering Information – AccuGENE™ Buffers

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
<b>Buffers for DNA Electrophoresis</b>				
50844	BE50844	AccuGENE™ 10X TAE Buffer	0.4 M Tris-acetate, 0.01 M EDTA (disodium salt), pH 8.0	1 L
50841	50841	AccuGENE™ 10X TAE Buffer	0.4 M Tris-acetate, 0.01 M EDTA (disodium salt), pH 8.0	4 L
51216	BE51216	AccuGENE™ 50X TAE Buffer	2.0 M Tris-acetate, 0.05 M EDTA, pH 8.3	1 L
50836	50836	AccuGENE™ 5X TBE Buffer	0.45 M Tris-borate, 0.01 M EDTA (disodium salt), pH 8.3	20 L
50843	BE50843	AccuGENE™ 10X TBE Buffer	0.89 M Tris-borate, 0.02 M EDTA (disodium salt), pH 8.3	1 L
<b>Buffers for RNA Electrophoresis</b>				
50876	50876	AccuGENE™ 10X MOPS Buffer	0.2 M MOPS [free acid], 0.05 M sodium acetate, 0.01 M EDTA (disodium salt), 0.01 M EGTA [free acid], pH 7.0. No detectable RNase activity	1 L
<b>Electrophoresis Loading Buffers</b>				
50655	50655	DNA Loading Buffer (6X)	Ficoll® based with bromophenol blue and xylene cyanol	5 × 1 mL
50571	50571	Formaldehyde Sample Buffer	RNA denaturing sample buffer, contains bromophenol blue and xylene cyanol	5 × 1 mL
50632	50632	Triple-Dye Loading Buffer (6X)	Contains bromophenol blue, xylene cyanol, and orange G	1.1 mL
<b>Buffers for Protein Electrophoresis</b>				
50879	BE50879	AccuGENE™ 10X Tris-Glycine Buffer	0.25 M Tris base, 1.92 M Glycine	1 L

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## GelBond® Film

### Agarose Support Film

GelBond® Film is a transparent, flexible polyester film designed to support agarose gels. Gels cast on GelBond® Film remain permanently attached to the film through electrophoresis or immunodiffusion and all subsequent fixing, staining, destaining, and drying procedures (gels remain flexible after drying). GelBond® Film is available either as precut sheets or rolls.

#### ■ Benefits

- **Reliable** – Agarose gels cast on GelBond® Film retain their original dimensions during staining and after drying
- **Durable** – Gels, particularly thin ones, are easier to handle during staining, destaining, and drying when supported
- **Convenient** – Gel orientation can be recorded directly on the GelBond® Film prior to casting

**NOTE:** Polyester films will not transmit light of less than 310 nm, and will fluoresce at higher wavelengths.

#### ■ Applications

- Drying and support of agarose gels

 18°C to 26°C

#### Ordering Information – GelBond® Film Sheets and Rolls

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Sheet Size (mm)	Chamber Compatibility
53734	53734	GelBond® Film Sheets	For agarose gels, 0.2 mm thick	85 mm × 100 mm (100 sheets)	
53745	53745	GelBond® Film Sheets	For agarose gels, 0.2 mm thick	110 mm × 125 mm (100 sheets)	
53746	53746	GelBond® Film Sheets	For agarose gels, 0.2 mm thick	100 mm × 150 mm (100 sheets)	Bio-Rad® Wide Mini-Sub® Cell, Bio-Rad® Sub-Cell® (H)
53748	53748	GelBond® Film Sheets	For agarose gels, 0.2 mm thick	110 mm × 205 mm (100 sheets)	
53749	53749	GelBond® Film Sheets	For agarose gels, 0.2 mm thick	160 mm × 180 mm (100 sheets)	Hoefer® SE400, Hoefer® SE600 (V), Bio-Rad PROTEAN® II xi (V)
53759	53759	GelBond® Film Sheets	For agarose gels, 0.2 mm thick	125 mm × 245 mm (100 sheets)	
53761	53761	GelBond® Film Sheets	For agarose gels, 0.2 mm thick	124 mm × 258 mm (100 sheets)	GE Multiphor® (H)
53740	53740	GelBond® Film Rolls	For agarose gels, 0.2 mm thick	102 mm × 16.5 m (roll)	
53750	53750	GelBond® Film Rolls	For agarose gels, 0.2 mm thick	102 mm × 16.5 m (roll)	
53780	53780	GelBond® Film Rolls	For agarose gels, 0.2 mm thick	203 mm × 16.5 m (roll)	

Custom-cut GelBond® Film is available upon special request. Please inquire for pricing and availability.

(H) = Horizontal; (V) = Vertical

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## GelBond® PAG Film

### Polyacrylamide Support Film


GelBond® PAG Film is a transparent, flexible polyester film designed to support polyacrylamide or MDE™ Gels. The acrylamide monomers covalently attach to the coating on the film during the polymerization reaction. Gels remain permanently attached to the film through electrophoresis and all subsequent fixing, staining, destaining, and drying procedures.

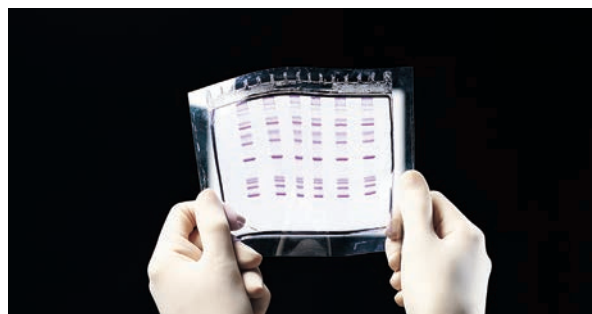
#### ■ Benefits

- **Reliable** – Polyacrylamide gels retain their original dimensions during staining and after drying
- **Durable** – Gels, particularly thin ones, are easier to handle during staining, destaining, and drying when supported
- **Convenient** – Gel orientation can be recorded directly on the GelBond® PAG Film prior to casting  
NOTE: Polyester films will not transmit light of less than 310 nm, and will fluoresce at higher wavelengths.

#### ■ Applications

- Drying and support of polyacrylamide gels

 18°C to 26°C, protect from light



GelBond® PAG Support Film

### Ordering Information – GelBond® Film Sheets and Rolls

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Sheet Size (mm)	Chamber Compatibility
54711	54711	GelBond® PAG Support Film Sheets	For polyacrylamide gels, 0.2 mm thick	138 mm × 158 mm (50 sheets)	
54723	54723	GelBond® PAG Support Film Sheets	For polyacrylamide gels, 0.2 mm thick	160 mm × 180 mm (50 sheets)	Hoefer® SE400, SE600, Bio-Rad® PROTEAN® II
54727	54727	GelBond® PAG Support Film Sheets	For polyacrylamide gels, 0.2 mm thick	124 mm × 258 mm (50 sheets)	GE Multiphor®
54729	54729	GelBond® PAG Support Film Sheets	For polyacrylamide gels, 0.2 mm thick	220 mm × 165 mm (50 sheets)	
54731	54731	GelBond® PAG Support Film Sheets	For polyacrylamide gels, 0.2 mm thick	199 mm × 264 mm (50 sheets)	
54733	54733	GelBond® PAG Support Film Sheets	For polyacrylamide gels, 0.2 mm thick	203 mm × 260 mm (50 sheets)	GE Multiphor® II
54746	54746	GelBond® PAG Support Film Sheets	For polyacrylamide gels, 0.2 mm thick	350 mm × 430 mm (10 sheets)	X-ray size

Custom-cut GelBond® PAG Support Film is available upon special request. Please inquire for pricing and availability.

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## Protein Electrophoresis and Analysis

High-Performance Products that are Fast and Easy to Use



### Protein Electrophoresis and Analysis

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## Introduction

### Faster Protein Solution for Separations, Blotting and Staining

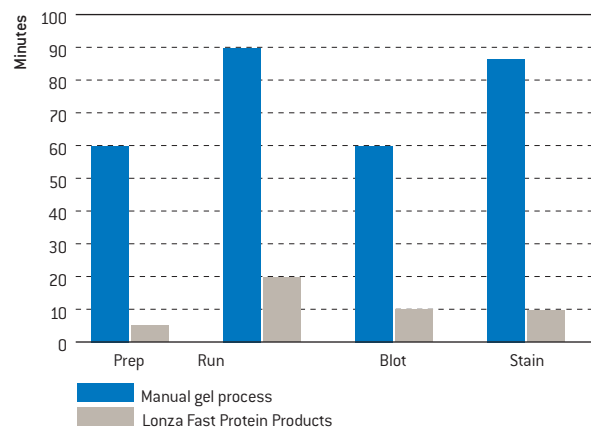
Lonza's protein solution is addressing the need for a faster, more efficient protein electrophoresis process. Ultimately, these products combined, take protein separation, western and transfer blotting, and staining from over 5 hours down to less than 1 hour.

Our PAGEr™ EX Protein Staining Kits and PAGEr™ EX Protein Transfer/Western Blot Kits are demo kits designed to combine the total solution for the ultimate fast separation with staining and transfer in less than 30 minutes.

Each individual component offers a unique solution and can be incorporated into your current protein process:

- PAGEr™ EX Gels were designed for fast 20–25 minute separation, ambient shipping, and are run using ProSieve™ EX Running Buffer
- ProSieve™ EX Safe Stain takes your staining process down to just 1 step in 10 minutes
- ProSieve™ EX Western Blot Transfer Buffer can be used with most gels for a 10 minute transfer
- ProSieve™ EX Running Buffer offers a reduced separation time for any Tris-glycine gels
- ProSieve™ QuadColor™ Protein Marker provides accurate confirmation of protein transfer in the range of 4.6 kDa–300 kDa

### Lonza Protein Solution Time Savings



The time savings and convenience can help your research with each stage of the protein process, from prep to stain or blot time.

# PAGEr™ EX Protein Kits

Complete Solution in Less than 1 Hour

The staining and blotting kits are designed for convenience with everything you need to improve and simplify your protein electrophoresis process.

- Kits consist of:
- PAGEr™ EX Protein Transfer/Western Blotting Kit – 2 PAGEr™ EX Gels, ProSieve™ EX Running Buffer, ProSieve™ EX Western Blot Transfer Buffer and a ProSieve™ Quad Color Marker
  - PAGEr™ EX Protein Staining Kit – 2 PAGEr™ EX Gels, ProSieve™ EX Running Buffer, ProSieve™ EX Safe Stain and a ProSieve™ Quad Color Marker



## Ordering Information – PAGEr™ Protein Trial Kits

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Range
201747	201747	Fast Protein Transfer Blotting Kit	Mid/high, cassette size: 9 cm × 10 cm, 12-well	25 – 250 kDa
201742	201742	Fast Protein Transfer Blotting Kit	Mid/high, cassette size: 10 cm × 10 cm, 12-well	25 – 250 kDa
201743	201743	Fast Protein Transfer Blotting Kit	Low/mid, cassette size: 9 cm × 10 cm, 12-well	25 – 200 kDa
201744	201744	Fast Protein Transfer Blotting Kit	Low/mid, cassette size: 10 cm × 10 cm, 12-well	25 – 200 kDa
201745	201745	Fast Protein Staining Kit	Low/mid, cassette size: 9 cm × 10 cm, 12-well	25 – 200 kDa
201746	201746	Fast Protein Staining Kit	Low/mid, cassette size: 10 cm × 10 cm, 12-well	25 – 200 kDa
201741	201741	Fast Protein Transfer Blotting Kit	Mid/high, cassette size: 9 cm × 10 cm, 12-well	25 – 250 kDa
201748	201748	Fast Protein Staining Kit	Mid/high, cassette size: 10 cm × 10 cm, 12-well	25 – 250 kDa

## PAGEr™ EX Gels

Redesigned for Speed and Longer Shelf Life

PAGEr™ EX Gels have a proprietary formulation with faster run times and longer shelf life. They cover the full protein size range with fewer configurations making it easier to choose the best one for your needs. They are also compatible with a wide range of chambers. These are more than just another type of protein gel, they are a protein electrophoresis solution.

### ■ Benefits

- Fast separation, 20–25 minutes used with ProSieve™ EX Running Buffer
- Reduce your costs with ambient shipping
- 12 month shelf life

### ■ Performance and Quality Tests

- Every lot of PAGEr™ EX Gels is functionally tested and 100% guaranteed

 2°C to 8°C



### PAGEr™ EX Gels Performance and Specifications

Well formats	Size Separation	Equivalent concentration	Cassette Dimensions	Buffer needed	Chambers Types
12-well, 16-well	Low/Med range: 5–225 kDa Med/High range: 10–350 kDa	10% 4–12%	9 × 10 cm, 10 × 10 cm	ProSieve™ EX Running Buffer	See chamber compatibility page 341

### Ordering Information – PAGEr™ EX Gels


Cat. No. NA	Cat. No. EU	Product Name	Product Description	Range
<b>12-well</b>				
58722	58722	PAGEr™ EX Gels	Mid/high, cassette size: 9 cm × 10 cm, 12-well	10–350 kDa
59722	59722	PAGEr™ EX Gels	Mid/high, cassette size: 10 cm × 10 cm, 12-well	10–350 kDa
58702	58702	PAGEr™ EX Gels	Low/mid, cassette size: 9 cm × 10 cm, 12-well	5–225 kDa
59702	59702	PAGEr™ EX Gels	Low/mid, cassette size: 10 cm × 10 cm, 12-well	5–225 kDa
<b>16-well</b>				
58724	58724	PAGEr™ EX Gels	Mid/high, cassette size: 9 cm × 10 cm, 16-well	10–350 kDa
59724	59724	PAGEr™ EX Gels	Mid/high, cassette size: 10 cm × 10 cm, 16-well	10–350 kDa
58714	58714	PAGEr™ EX Gels	Low/mid, cassette size: 9 cm × 10 cm, 16-well	5–225 kDa
59714	59714	PAGEr™ EX Gels	Low/mid, cassette size: 10 cm × 10 cm, 16-well	5–225 kDa

# ProSieve™ EX Stains

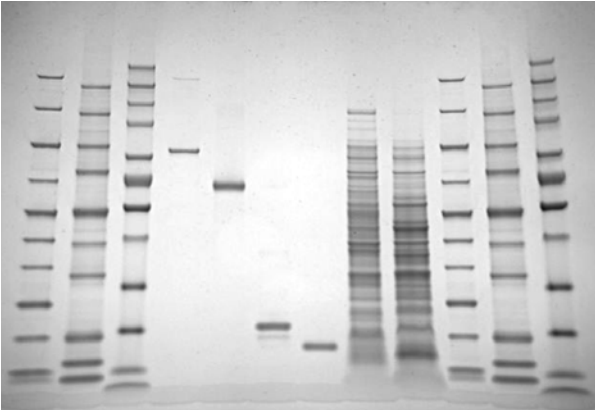
Revolutionary, Fast and Safe

These revolutionary stains provide faster staining times and less handling than other staining products. With special features that make each product unique, choosing the right stain for your research is easy.

- ProSieve™ EX Safe Stain; the ultimate fast solution that can provide a one step, safe stain in 10 minutes.

 2°C to 8°C

## ProSieve™ EX Safe Stain with PAGEr™ EX Gels Offers Better Results in Half the Time



15 min gel run with PAGEr™ EX Gels and ProSieve™ EX Running Buffer at 275V, 10 minutes ProSieve™ EX Safe Stain, (total 25 minutes)

### Ordering Information – ProSieve™ EX Stains

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
223566	223566	ProSieve™ EX Safe Stain	One step, ten minute protein stain that is non-toxic	1 L
223567	223567	ProSieve™ EX Safe Stain	One step, ten minute protein stain that is non-toxic	25 mL



## ProSieve™ EX Running and Transfer Buffers

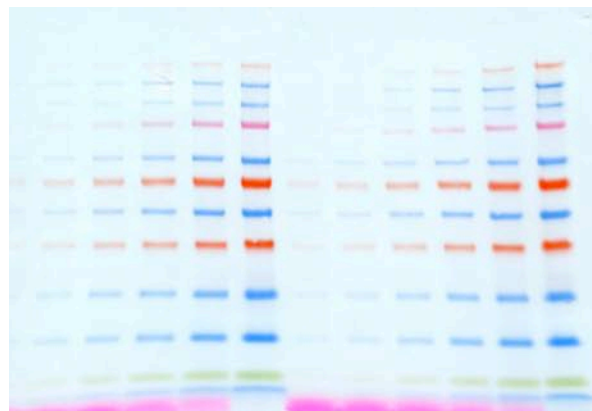
New protein separation and western blot transfer buffers are modified formulations that perform just like tris-glycine, but significantly accelerate run and transfer times without compromising results. Tris-glycine SDS buffers have been recognized as the gold standard for analyzing proteins by PAGE for decades. Now, the standard 2-hour method for protein separation and transfer can be reduced to less than 30 minutes with these buffers:

### ■ Benefits

- Separation in 10–20 minutes
- Transfer in 10 minutes
- Compatibility with standard gel systems and protocols
- Razor sharp resolution

 2°C to 8°C

### ProSieve™ EX Transfer/Western Blot Buffer with PAGEr™ EX Gels Provides Protein Confirmation in Minutes



ProSieve™ EX Transfer/Western Blot Buffer run with PAGEr™ EX Gels and ProSieve™ Running Buffer transferred to PVDF

### Ordering Information – ProSieve™ EX Buffers

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
200309	200309	ProSieve™ EX Transfer Buffer	Ten minute protein transfer buffer	1 L
200307	200307	ProSieve™ EX Running Buffer	Less than 30 minute protein running buffer	1 L

Related Products	Page
PAGEr™ EX Gels	338
ProSieve™ QuadColor™ Protein Marker	344
ProSieve™ EX Safe Stain	339

## PAGEr™ Gold Precast Gels

Reliable, Easy-to-use Minigels



PAGEr™ Precast Gels are easy-to-use protein minigels that offer sharper resolution, more consistent protein transfer, and a long usable shelf life. PAGEr™ Gels are easy-to-use and compatible with most minigel chambers.

### ■ Benefits

- **Razor sharp resolution** – Crisp separation of proteins 5 kDa–300 kDa
- **Easy-to-use** – Marked sample lanes for easy loading and simple twist open design
- **Compatible** – Two sizes to fit most chambers
- **Versatile** – Multiple well formats and gel concentrations
- **Tris-Glycine buffer** – Traditional Laemmli separation
- **Fresh** – We ship fresh gels every time for guaranteed performance

### ■ Applications

- Western blotting
- Denaturing and native protein electrophoresis
- 2D electrophoresis

### ■ Performance and Quality Tests

- Every lot of PAGEr™ Precast Gels is functionally tested and 100% guaranteed

We offer over 70 format options for denatured and native protein separation over a wide molecular weight range, in an array of configurations in both 9 cm × 10 cm and 10 cm × 10 cm sizes to fit popular chambers. See chamber compatibility chart (at right) to determine the right gel size for your system.

### ■ Chamber Compatibility

- PAGEr™ Precast Gels are available in 9 cm × 10 cm and 10 cm × 10 cm sizes and fit most standard mini-vertical systems
- Some chambers may require modifications for optimal fit with PAGEr™ Precast Gels

### Specifications

Cassette Dimensions	Cassette Thickness	Gel Dimensions
9 cm × 10 cm (L × W)	0.49 cm	7.1 × 8.3 (L × W) × 0.1 cm
10 cm × 10 cm (L × W)	0.55 cm	8.1 × 8.3 (L × W) × 0.1 cm
Gel matrix/buffer	Polyacrylamide/Tris-Glycine <b>NOTE:</b> Gels do not contain SDS. Add SDS to sample buffer to create denaturing running conditions.	
Stacking gel	4% stacking gel	
Well formats	2D-well, 8+1-well*, 10-well, 12-well, 16-well, 17-well*	
Cassettes	Plastic	
Storage/shelf life	2°C – 8°C for 3.5 months from date of manufacture Guaranteed 10 weeks shelf life upon receipt	

\*multichannel pipette compatible well formats

### ■ PAGEr™ Precast Gel comb formats

- Comb configurations are designed for a range of sample volumes and throughput, including multichannel pipette compatible formats

Number of wells:	10-well	12-well
Recommended load volume:	32 µL	20 µL
Number of wells:	16-well	17-well*
Recommended load volume:	14 µL	14 µL
Number of wells:	2D-well	8 + 1-well*
Recommended load volume:	550 µL sample, or 7 cm IPG strip, 12 µL marker	30 µL sample 12 µL marker

\*Multichannel pipette compatible

Standard Vertical Systems	PAGEr™ Gels
PAGEr™ Minigel Chamber	9 cm × 10 cm or 10 cm × 10 cm gels*
Bio-Rad® Mini-PROTEAN® II, Mini-PROTEAN® 3, Mini-PROTEAN® Tetra, Mini-PROTEAN® Dodeca™ and Ready Gel® Cell Systems. Reverse the inner core gasket so the flat side faces outward.	9 cm × 10 cm gels
Novex® XCell SureLock® Mini-Cell or XCell II Request the spacer for the XCell SureLock® Mini-Cell Chamber from Scientific Support, [Cat. No. 59900].	10 cm × 10 cm gels*
FisherBiotech® Vertical Minigel FBVE121, Owl Separations Systems Wolverine™ P82 Chamber comes with 2 sets of wedges. Use the thinner wedges for the PAGEr™ Gold Gels.	10 cm × 10 cm gels
FisherBiotech® Vertical Minigel FB-VE101, Owl Separations Systems Penguin™ Model P8DS Request adaptor for these chambers from Scientific Support, [Cat. No. 59902].	10 cm × 10 cm gels
Hoefer® Mighty Small™ [SE260]	9 cm × 10 cm or 10 cm × 10 cm gels
EC 120 Mini Vertical Gel System	9 cm × 10 cm or 10 cm × 10 cm gels
CBS Scientific MGVS System, [10 cm × 8 cm units]	9 cm × 10 cm gels
Hoefer® Mini VE	10 cm × 10 cm gels

\*Recommended for best fit

# PAGEr™ Protein Gel Selection Guide



## Ordering Information – PAGEr™ Gold Gels

Cat. No.	Description	Size
See below	PAGEr™ Gold Tris-Glycine Precast Gels	10 gels per box

Gel concentration/ separation range	Cassette size (cm)						
		Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.	Cat. No.
		2D-well	10-well	12-well	16-well	17-well*	8 + 1-well*
4–12% gradient	9 × 10	—	58520	58522	58524	—	—
25–250 kDa	10 × 10	—	59520	59522	59524	—	—
4–20% gradient	9 × 10	—	58511	58505	58517	58545	58551
5–200 kDa	10 × 10	59557	59511	59505	59517	59545	59551
8–16% gradient	9 × 10	—	58519	58521	58523	58560	58562
15–200 kDa	10 × 10	59564	59519	59521	59523	59560	59562
10–20% gradient	9 × 10	—	58512	58506	58518	—	—
5–150 kDa	10 × 10	—	59512	59506	59518	—	—
7.5%	9 × 10	—	58507	58501	58513	58540	—
50–200 kDa	10 × 10	—	59507	59501	59513	—	—
10%	9 × 10	—	58508	58502	58514	58542	58548
25–200 kDa	10 × 10	59554	59508	59502	59514	59542	59548
12%	9 × 10	—	58509	58503	58515	58543	—
20–200 kDa	10 × 10	59571	59509	59503	59515	59543	—
15%	9 × 10	—	58510	58504	58516	58544	58550
10–50 kDa	10 × 10	59556	59510	59504	59516	59544	59550

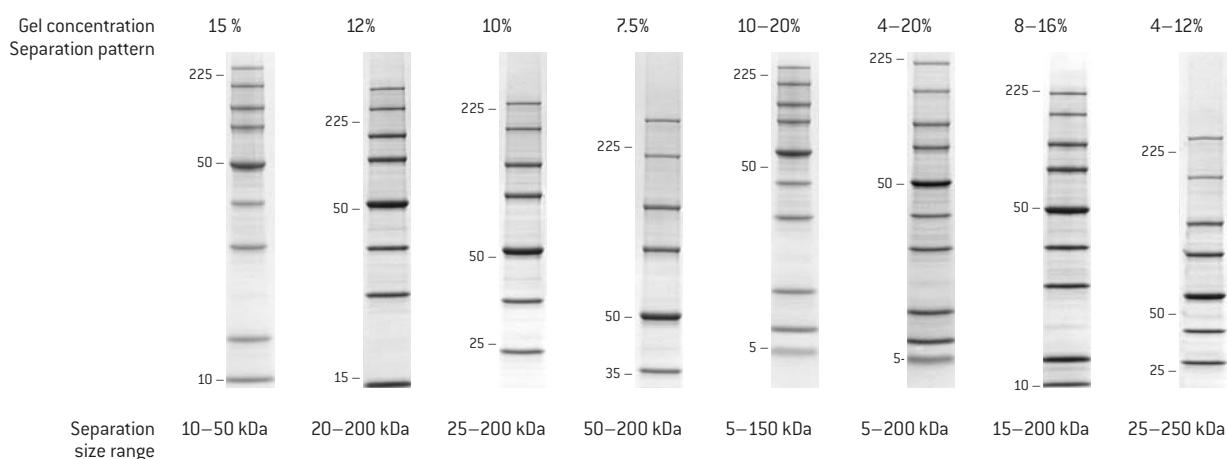
## PAGEr™ Gold Scouting Kit

### Percentage PAGEr™ Precast Gel

#### ■ Gel Concentration and Size Separation Range

- Lower concentrations are best for resolving large molecules and higher concentrations are best for

resolving small molecules. Gradient gels are best for proteins that are unknown or occur over a wide molecular weight range.



Gels were run at 175 volts until the dye front reached the bottom of the gel approximately 60 minutes). 8 µL–10 µL of marker was loaded per lane (0.8 µg–1 µg per band). Gels were stained with Coomassie™ Brilliant Blue Stain.

## Ordering Information – PAGEr™ Gold Scouting Kit

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
58100	58100	PAGEr™ Gold Scouting Kit	9 cm × 10 cm	Select 6 gels of any type

## PAGEr™ Minigel Chamber

Absolute Simplicity and Optimal Performance

### PAGEr™ Minigel Chamber

The PAGEr™ Minigel Chamber is designed to provide optimized performance from PAGEr™ Precast Gels and will also work with most other precast minigels. The simple, lock-in-place core design assures a tight, flat fit and eliminates the risk of buffer leaks. No need to remove the core – simply insert gels, close the clamps, fill with buffer and run. Runs one or two gels and accommodates a tank blotting module.

#### ■ Benefits

- Easy-to-use, lock-in-place core eliminates leaking and minimizes handling
- Perfect fit with 9 cm × 10 cm and 10 cm × 10 cm PAGEr™ Gels
- Even electrical force ensures straight lanes
- Solid, robust construction
- Optimizes performance of PAGEr™ Gels

#### ■ Applications

- SDS-PAGE electrophoresis
- 2D electrophoresis
- Tank blotting

### PAGEr™ Blot Module

The PAGEr™ Blot Module works directly in the PAGEr™ Minigel Chamber and provides exceptional blotting with a fast, simple protocol.

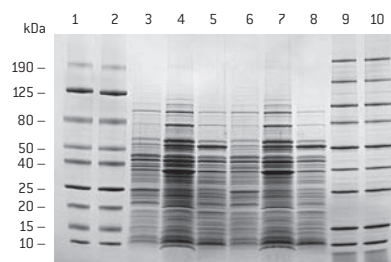
#### ■ Benefits

- Color-coded cassettes ensure proper orientation of the gel during transfer
- Transfer time of 90 minutes or less
- Hinged cassette design for easy assembly

The system can be purchased as a kit, including the PAGEr™ Minigel Chamber and PAGEr™ Blot Module, or components may be purchased separately.



### Performance of the PAGEr™ Minigel Chamber



Markers and *E. coli* lysate run on a 9 cm × 10 cm PAGEr™ Gel @ 200 V for 60 minutes in the PAGEr™ Minigel Chamber. Samples from left to right: 1 and 2 ProSieve™ Color Protein Marker; 3–8 *E. coli* lysate; 9 and 10 ProSieve™ Protein Marker.

#### Specifications

Gel types:	Most standard precast minigels (casting apparatus not included)
Gel sizes:	9 cm × 10 cm (adapter included) and 10 cm × 10 cm
Chamber capacity:	Single gel (blank included), 2 gels, or blot cassettes
Buffer volume:	~800 mL

[www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### Ordering Information – PAGEr™ Minigel Chamber

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
59905	59905	PAGEr™ Minigel Chamber		9 cm × 10 cm or 10 cm × 10 cm
59906	59906	PAGEr™ Blot Module		each
59907	59907	PAGEr™ Minigel Chamber and Blot Module Kit	Includes chamber, 2 blotting cassettes, and sponge pads (8/pack). Contact Scientific Support for information about replacement parts.	9 cm × 10 cm or 10 cm × 10 cm

Contact Scientific Support for information about replacement parts.

Related Products	Page
ProSieve™ EX Running and/or Western Blot Transfer Buffer(s)	340
PAGEr™ EX Gels and PAGEr™ Gold Gels	338 & 341
AccuGENE™ Buffers	331

## ProSieve™ Color Protein Markers

Sharp, Accurate Confirmation of Protein Transfer

ProSieve™ Color Protein Markers are ideal for monitoring protein separation prior to staining and provide accurate confirmation of protein transfer in Western blotting.

### ■ Benefits

- **Convenient** – Just add water and load (ProSieve™ Color only; not required for ProSieve™ QuadColor™)
- **Sharp** – Multi-colored, readily identifiable band pattern for monitoring electrophoresis and confirming protein transfer
- **Versatile** – Verify protein transfer following Western blotting

ProSieve™ Color Protein Markers are a set of proteins and dyes for use as visible markers in SDS-PAGE gels. During electrophoresis, these markers help monitor the efficiency of separation. In Western blotting, they confirm transfer has occurred from the gel to the membrane. The proteins have been labeled with fluorescent dyes and contain the buffer salts and detergent found in the typical Laemmli buffer system.

### ■ ProSieve™ Color Protein Marker, 10–190 kDa

- 9 proteins {10, 15, 20, 25, 40, 50, 80, 125, 190 kDa}

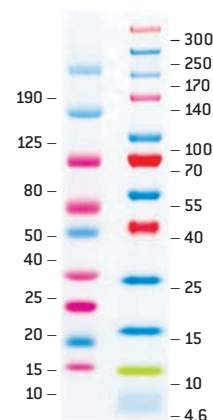
### ■ ProSieve™ QuadColor™ Protein Marker, 4.6–300 kDa

- 12 proteins {4.6, 10, 15, 25, 40, 55, 70, 100, 140, 170, 250, 300 kDa}

**NOTE:** Not recommended for accurate protein sizing. For sharp, accurate sizing, use ProSieve™ Protein Markers (page 345).

 -20°C

### ProSieve™ Color Protein Markers



Typical Results

### ProSieve™ Color Protein Marker Performance vs. Leading Competitors



Markers were run on a Lonza 4–20% PAGEr™ Gold Precast Gel in Tris-Glycine SDS Buffer at 200 V for ~60 minutes.

Lane 1: Bio-Rad® Precision Plus Dual Color Standard

Lane 2: Sigma ColorBurst™ Electrophoresis Marker

Lane 3: Lonza ProSieve™ Color Protein Marker

Lane 4: Lonza ProSieve™ QuadColor™ Protein Marker

Lane 5: Invitrogen BenchMark™ Pre-Stained Ladder

Lane 6: Invitrogen Novex® Sharp Pre-Stained Standard

Lane 7: GE Full Range Rainbow® Marker

Lane 8: Pierce 3-Color Pre-Stained Marker

Lane 9: Lonza ProSieve™ Color Protein Marker

Lane 10: Lonza ProSieve™ QuadColor™ Protein Marker

Lane 11: Invitrogen SeeBlue® Plus 2 Pre-Stained Standard

Lane 12: Bio-Rad® Precision Plus Kaleidoscope™ Standard

### Ordering Information – ProSieve™ Color Protein Marker

Cat. No. NA	Cat. No. EU	Product Name	Range	Application	Size
50552	50552	ProSieve™ Color Protein Marker	10 kDa – 190 kDa	10	100 µL
50550	50550	ProSieve™ Color Protein Marker	10 kDa – 190 kDa	50	500 µL
193837	193837	ProSieve™ QuadColor™ Protein Marker	4.6 kDa – 300 kDa	50	500 µL

## ProSieve™ Protein Markers

Sharp, Accurate Sizing of Proteins 5 kDa–225 kDa

ProSieve™ Protein Markers consists of a novel set of proteins designed for accurate sizing of protein samples in SDS-PAGE. Markers contain proteins with exact masses and a 50 kDa band of higher intensity for easy identification.

### ■ Benefits

- **Simple** – Wide distribution of exact masses simplifies sample determination
- **Accurate** – Recombinant proteins do not contain oligosaccharides that can cause anomalous migration, heterogeneous “fuzzy” bands, and inaccurate size estimation
- **Versatile** – Before Western blotting, markers can be visualized in gel with SYPRO® Tangerine Gel Stain (page 349) without inhibition of protein transfer

 -20°C

### Ordering Information – ProSieve™ Protein Marker

Cat. No. NA	Cat. No. EU	Product Name	Range	Application	Size
193839	193839	ProSieve™ Unstained Protein Marker II	10 kDa – 225 kDa	100	500 µL

## ProSieve™ ProTrack™ Dual Color Protein Loading Buffer

Protect and Track Protein Samples

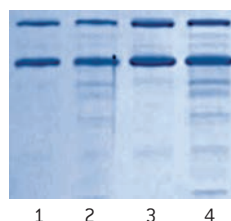
### ■ Benefits

- Protects proteins from degradation during sample preparation
- Two colors for tracking electrophoresis progress (blue) and monitoring Western transfer (pink)
- Contains SDS and DTT for complete protein denaturing

 -20°C



ProSieve™ ProTrack™ Blue Dye monitors protein separation on the gel, while the pink dye confirms transfer of the proteins onto the blot.



Lanes 1 and 3 are proteins protected by ProSieve™ ProTrack™ Dual Color Loading Buffer, Lanes 2 and 4 are proteins prepared and run in a standard loading buffer.

### Ordering Information – ProSieve™ ProTrack™ Dual Color Protein Loading Buffer

Cat. No. NA	Cat. No. EU	Product Name	Application	Size
193861	193861	ProSieve™ ProTrack™ Dual Color Protein Loading Buffer (4X)	(4X), 5 µL	5 mL

## AccuGENE™ Protein Electrophoresis Buffers

Optimum Performance

AccuGENE™ Electrophoresis Buffers are formulated to match PAGEr™ Precast Gels. AccuGENE™ Buffers for protein electrophoresis are prepared with high quality reagents and use 18 megOhm water. Products are filtered using a 0.2-micron filter.

 18°C to 24°C

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### ■ Benefits

- **Reliable** – Manufactured according to strict quality control standards to ensure lot-to-lot consistency
- **Efficient** – Ready-to-use solutions eliminate preparation time
- **Flexible** – Customized solutions are available to meet individual needs

### Ordering Information – AccuGENE™ 10X Tris-Glycine Buffer

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Storage Conditions	Size
50879	BE50879	AccuGENE™ 10X Tris-Glycine Buffer	0.25 M Tris base, 1.92 M Glycine	18°C to 24°C	1 L
50880	BE50880	AccuGENE™ 10X Tris-Glycine SDS Buffer	0.25 M Tris base, 1.92 M Glycine, 1% SDS	18°C to 24°C	1 L
50882	50882	AccuGENE™ 10X Tris-Glycine SDS Buffer	0.25 M Tris base, 1.92 M Glycine, 1% SDS	18°C to 24°C	4 L

Related Products	Page
PAGEr™ Minigel Chamber	343
PAGEr™ EX Precast Gels	338
PAGEr™ Gold Precast Gels	341
ProSieve™ ProTrack™ Dual Color Protein Loading Buffer	345



## SYPRO® Protein Gel Stains

Fast, Sensitive, Easy-to-use Protein Gel Stains

SYPRO® Protein Gel Stains are simple, sensitive alternatives to Coomassie™ Brilliant Blue Stain and Silver Stain for a diverse range of applications from 2D gel staining to staining gels prior to Western blotting.

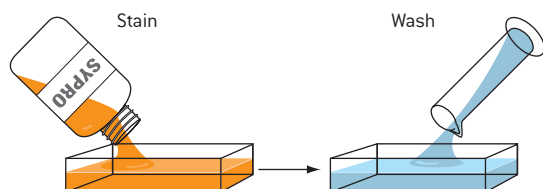
### ■ Benefits

- **Exquisitely sensitive** – Detection limits rival the best silver stains
- **Fast and easy** – Simple procedures require no complex fixation or destain
- **Quantitative** – Broad linear range over 3 orders of magnitude
- **Versatile** – Visualize with UV transilluminators, Dark Reader® transilluminators, and laser scanners
- **Compatible** – With downstream processing such as mass spectrometry and microsequencing

### Select the Best Stain for Your Application

Application	SYPRO® Ruby	SYPRO® Tangerine	SYPRO® Red
High performance staining	■		■
Staining prior to Western blotting		■	
2D Electrophoresis	■		
Edman microsequencing	■	■	■
Mass spectrometry	■	■	■
Quantitation	■	■	■
Zymography	■	■	■
Electroelution	■	■	■
Membrane staining	■		
Protein expression	■		
Detection prior to Immunostaining	■	■	
Difficult to stain proteins	■		
IEF Gels	■		

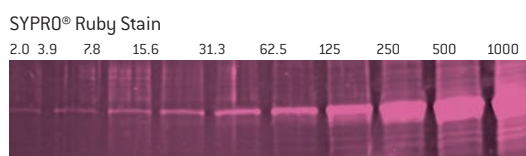
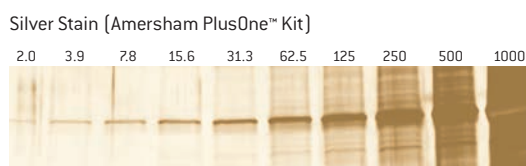
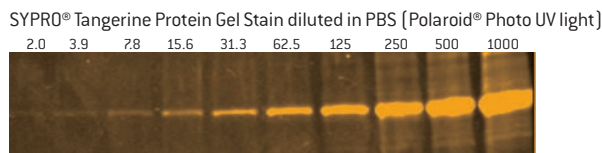
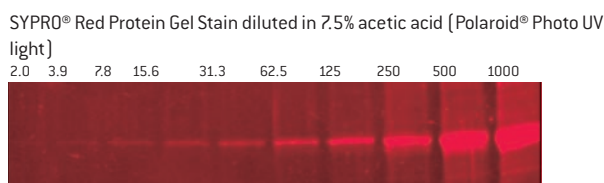
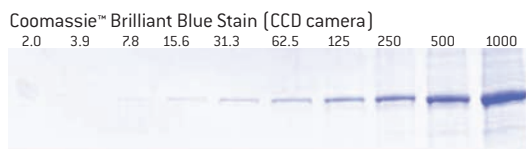
### Fast, Simple Staining Procedure



Fixation is required for staining 2D gels in SYPRO® Ruby Gel Stain. No wash step is necessary for SYPRO® Red or Tangerine Gel Stains.

### Sensitivity of SYPRO® Stains Compared to Coomassie™ Brilliant Blue and Silver Stain

Serial dilutions of ProSieve™ Protein Marker 50 kDa band on 12% PAGER™ Gold Precast Gels, stained and photographed as noted. Protein levels indicated in nanograms.



Related Products	Page
PAGER™ Precast Gels	341
PAGER™ EX Gels	338

## SYPRO® Ruby Protein Gel Stain

The Best Stain for 2D Gel Analysis

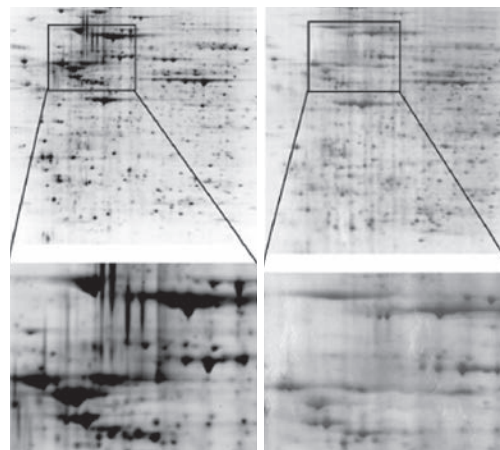
SYPRO® Ruby Protein Gel Stain is a highly sensitive, simple to use fluorescent protein gel stain that can accurately quantitate protein expression levels and is compatible with standard fluorescent visualization systems and downstream identification techniques, such as mass spectrometry.

### ■ Benefits

- **Highly sensitive** – Rivals the best silver stain
- **Quantitative** – Broad linear range and consistent gel-to-gel staining
- **Fast** – Simple staining procedure saves time and money
- **High-throughput** – Fast, easy staining of multiple gels
- **Versatile** – Detects difficult to stain proteins

 18°C to 26°C

### SYPRO® Ruby vs. Silver Stain for 2D Analysis



Proteins from a cell lysate were run on a 2D gel and stained with SYPRO® Ruby Gel Stain (left) or silver stain (right)

### Ordering Information – SYPRO® Ruby Protein Gel Stain

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50564	50564	SYPRO® Ruby Protein Gel Stain		200 mL
50562	50562	SYPRO® Ruby Protein Gel Stain	Ready-to-use, single reagent format, stains approximately 20 minigels or 2 large 2D gels.	1 L

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## SYPRO® Red Protein Gel Stain

The Fastest, Easiest Stain for Detecting Proteins

SYPRO® Red Protein Gel Stain is a fast, highly sensitive fluorescent protein gel stain that detects as little as 4 ng–8 ng protein per band.

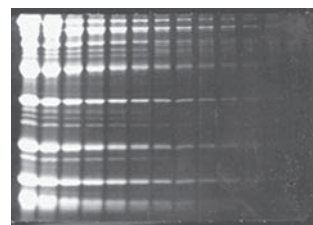
### ■ Benefits

- **Fast** – Complete staining in less than 1 hour
- **Sensitive** – Five times more sensitive than Coomassie™ Brilliant Blue Stain
- **Simple** – No fixation or destaining required
- **Consistent** – Low protein-to-protein variability

Staining is easy – simply soak gels in a solution of 1X SYPRO® Red Stain in 7.5% acetic acid for 40 to 60 minutes. The stain is compatible with UV transilluminators, CCD cameras or laser scanners.

Photographic filters recommended. See page 350.

### SYPRO® Red Gel Stain



SDS Polyacrylamide gel stained with SYPRO® Red Gel Stain

 18°C to 26°C

### Ordering Information – SYPRO® Red Protein Gel Stain

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50542	50542	SYPRO® Red Protein Gel Stain	10 × 50 µL as a 5,000X concentrate, sufficient for staining approximately 50 minigels	10 × 50 µL
50543	50543	SYPRO® Red Protein Gel Stain	500 µL as a 5,000X concentrate, sufficient for staining approximately 50 minigels	500 µL

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## SYPRO® Tangerine Protein Gel Stain

Ideal for Staining Gels Prior to Western Blotting

SYPRO® Tangerine Protein Gel Stain is a versatile, sensitive stain that can be used to visualize proteins prior to Western blotting.

### ■ Benefits

- **Visualize proteins prior to transfer** – Does not interfere with protein activity or transfer
- **Safe** – No acids or organic solvents necessary
- **Sensitive** – Detects as little as 4 ng–8 ng protein per band

The staining procedure is fast and simple and does not require the use of organic solvents; staining can be performed in saline or PBS solutions. Proteins can be used in zymography assays or analyzed by mass spectrometry.

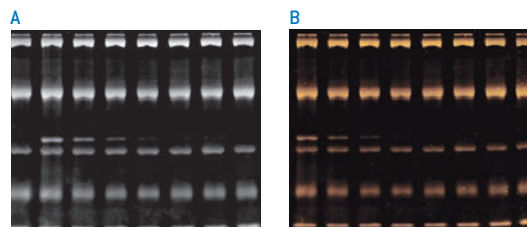
 18°C to 26°C

### Ordering Information – SYPRO® Tangerine Protein Gel Stain

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50556	50556	SYPRO® Tangerine Protein Gel Stain	Supplied as a 5,000X concentrated solution in DMSO, sufficient for staining 50 minigels	500 µL

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### Performance of SYPRO® Tangerine Gel Stain



Two identical SDS-PAGE gels were run with samples of protein molecular weight standards (leftmost lanes) and protein molecular weight standards mixed with decreasing amounts of *E. coli*  $\beta$ -glucuronidase and rabbit liver esterase. Gels were stained for total protein with SYPRO® Tangerine Protein Gel Stain, and for specific enzymatic activities. Both gels were first stained with SYPRO® Tangerine Protein Gel Stain (one gel shown, Panel A). One gel was stained with ELF®-97  $\beta$ -d-glucuronidase substrate [E-6587] for the detection of  $\beta$ -glucuronidase activity (Panel B).

## SYPRO® Ruby Protein Blot Stain

Fast, Simple, Sensitive Stain for Detecting Proteins on Blots

SYPRO® Ruby Protein Blot Stain offers sensitivity levels that rival colloidal stains. The stain is 60-times more sensitive than reversible stains like Ponceau S, and 30-times more sensitive than Amido Black or Coomassie™ Brilliant Blue Stains.

### ■ Benefits

- **Highly Sensitive** – Detects as little as 2 ng–8 ng protein per band
- **Fast** – Simple staining procedure takes less than 1 hour
- **Compatible** – With fluorogenic, chemiluminescent and colorimetric detection techniques

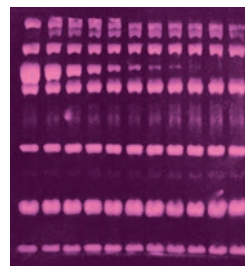
 18°C to 26°C

### Ordering Information – SYPRO® Ruby Protein Blot Stain

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50565	50565	SYPRO® Ruby Protein Blot Stain		200 mL

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### Total Protein Detection with SYPRO® Ruby Protein Blot Stain



Molecular weight standards containing decreasing amounts of  $\alpha$ -tubulin were run on an SDS-PAGE gel, blotted onto a PVDF membrane and stained with SYPRO® Ruby Protein Blot Stain.

## SYPRO® Protein Gel Stain Photographic Filter

For Optimal Detection Sensitivity with Black and White Film Photography

The SYPRO® Protein Gel Stain Photographic Filter is suitable for Polaroid® Camera Systems. The filter does not work with CCD camera systems. Check with the manufacturer for the appropriate filter. Recommended for use with all SYPRO® Protein Gel Stains.

### Ordering Information – SYPRO® Protein Gel Stain Photographic Filter

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50540	50540	SYPRO® Protein Gel Stain Photographic Filter	Wratten® #9 Gelatin Filter	3 inch square

Related Products	Page
PAGEr™ Minigel Chamber	343
PAGEr™ EX Gels	338
ProSieve™ Protein Marker	345
ProSieve™ ProTrack™ Dual Color Protein Loading Buffer	345
ProSieve™ EX Safe Stain	339

## IsoGel™ Agarose and Precast IsoGel™ Agarose IEF Plates

Isoelectric Focusing for Rapid Separation of Large Proteins

Separation of proteins in complex mixtures for analytical resolution can be achieved by isoelectric focusing (IEF), in which proteins are separated based on their net charge (isoelectric point or pI) in the presence of a pH gradient. Agarose has distinct advantages over polyacrylamide gels for isoelectric focusing. Separation in agarose is more rapid, and agarose gels can be used to separate proteins up to 2,000 kDa. We have developed two high quality products that are specifically designed and tested for their performance with IEF.

- IsoGel™ Agarose is a highly purified agarose that is easy to prepare and produces a gel with high clarity and a less restrictive matrix than polyacrylamide
- IsoGel™ Agarose IEF Plates are ready-to-use precast gels supported on GelBond® Film, eliminating gel preparation time and providing easy handling throughout the IEF process

### ■ Benefits

- **Safe** – No toxic acrylamide required
- **Fast** – Shorter staining times
- **Simple** – Nontacky and easy to blot

### ■ Applications

- Isoelectric focusing
- Antibody separation and analysis
- Immunofixation directly in the gel
- Crossed immunoelectric focusing
- Direct tissue or preparative isoelectric focusing
- Protein blotting
- Immunodetection of proteins



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## IsoGel™ Agarose

Highly Purified Agarose for Isoelectric Focusing

### ■ Benefits

- **No measurable EEO** – Manufacturing process minimizes fixed anions and mobile cations
- **Versatile** – Sufficiently rigid for casting in vertical tubes (e.g., O'Farrell gels<sup>1</sup>), vertically molded or horizontally open cast thin gels

### ■ Applications

- Isoelectric focusing

### ■ Reference

1. O'Farrell, P.H. [1975] High resolution two-dimensional electrophoresis of proteins. *J. Biol. Chem.* **250**: 4007–4021.

### Analytical Specifications

Moisture:	≤10%
Sulfate:	≤0.20%
EEO (–m <sub>r</sub> ):	Not detectable
Gel strength (1.5%):	≥ 500 g/cm <sup>2</sup>
IEF test:	Passes test



18°C to 26°C



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### Ordering Information – IsoGel™ Agarose

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50202	50202	IsoGel™ Agarose	For use in isoelectric focusing	25 g

Larger package sizes are available upon request. Please inquire for pricing and availability.

Related Products	Page
GelBond® Support Film Sheets	333

## Precast IsoGel™ Agarose IEF Plates

Precast Gels for the Analysis of Antibodies and Proteins up to 2,000 kDa

### ■ Benefits

- **Easy handling** – Each gel is supported on GelBond® Film to provide dimensional stability throughout IEF processing
- **Versatile** – Convenient 125 mm × 100 mm gel size fits most horizontal IEF chambers
- **Fast** – Proteins can be quickly transferred from gel to membrane, stained in situ, or detected by antibodies within 1 hour

### ■ Applications

- Isoelectric focusing
- Antibody separation and analysis

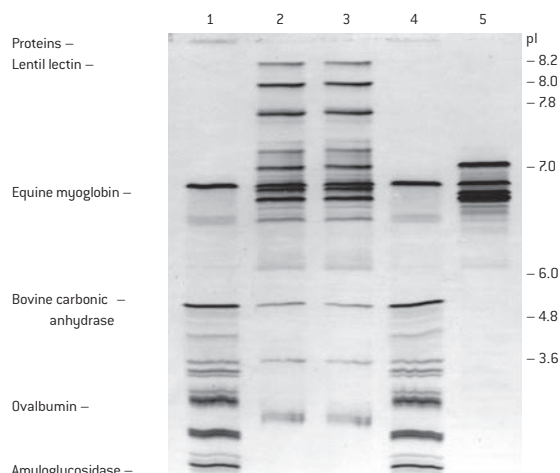
### ■ Performance and Quality Tests

- Each lot of IsoGel™ Agarose IEF Plates is functionally tested; Certificate of Analysis available upon request

 2°C to 8°C for 12 months from the date of manufacture  
Accessories: 18°C to 26°C

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### Performance of IsoGel™ Agarose IEF Plate



**Separation of proteins in an IsoGel™ Agarose IEF Plate, pH 3–10.** Lanes 1 and 4: pI Marker (in-house). Lanes 2 & 3: Broad Range pI 4.45–9.6 marker (Bio-Rad®). Lane 5: Hemoglobin, HB Type AFSC (PE Wallac). 2.5 µL of each sample were loaded on the gel and prefocused at 1 watt for 10 minutes and focused at 2000 volts (max), 25 mA (max), 25 W (max) for 60 minutes on a GE Multiphor® II Chamber at 10°C. The gel was stained with Crowley's stain.

### Ordering Information – Precast IsoGel™ Agarose IEF Plates

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Storage Conditions	Size
56015	56015	Precast IsoGel™ Agarose IEF Plates	pH range 3–10	2°C to 8°C	6 plates
56018	56018	Precast IsoGel™ Agarose IEF Plates	pH range 6–10.5	2°C to 8°C	6 plates
56024	56024	Precast IsoGel™ Agarose IEF Plates	pH range 7–11	2°C to 8°C	6 plates
56014	56014	Precast IsoGel™ Agarose IEF Plate, Accessory Pack	Contains masks, 100 mm and 125 mm wicks and blotting paper	18°C to 26°C	Sufficient for 6 plates
56010	56010	Precast IsoGel™ Agarose IEF Plate Accessory Bulk Pack	Contains 125 mm wicks and blotting paper	18°C to 26°C	100 each
56007	56007	Precast IsoGel™ Agarose IEF Blotting Paper		18°C to 26°C	250 sheets

### Related Products

GelBond® Support Film Sheets

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## Agarose for Protein Separation

Safe and Easy Separation of Large Proteins and Protein Complexes

Electrophoresis of proteins in agarose gels has distinct advantages compared to polyacrylamide for some applications. Agarose gels can easily and effectively separate high molecular weight proteins and protein complexes (>600 kDa).

 18°C to 26°C

 [www.lonza.com/sourcebook](http://www.lonza.com/sourcebook)

### ■ Benefits

- **Safe** – No toxic monomer solutions required
- **Efficient recovery** – High recovery yields with simple procedures
- **Flexible** – Gels can be made with standard Laemmli buffer systems

### ■ Applications

- Separation of large proteins and protein complexes

### Protein Separation

Routine Protein Separation Agarose	Typical Application	Protein Size Range [kDa]	Gel Concentration
MetaPhor™ Agarose	Protein electrophoresis	20–200	4%
MetaPhor™ Agarose	Protein electrophoresis	150–300	3%
MetaPhor™ Agarose	Protein electrophoresis	300–600	2%
SeaKem® Gold Agarose	Protein electrophoresis	600–1,000	1.5%
SeaPlaque™ Agarose	Protein electrophoresis	1,000–5,000	1%
Specialty Protein Separation			
IsoGel™ Agarose	Isoelectric focusing	Separation based on isoelectric point	
SeaKem® HGT Agarose	Counter-immunoelectrophoresis, CIEP, Crossed-IEP		
SeaKem® ME Agarose	Serum protein electrophoresis		
SeaKem® HEE0 Agarose	Immuno-electrophoresis of IgG and IgM		
SeaKem® HE Agarose	Serum protein electrophoresis, IEP, Crossed-IEP, CIEP		



# Agarose for Protein Separation

Continued

## Analytical Specifications

	SeaKem® HGT	SeaKem® HE	SeaKem® HEE0	SeaKem® ME
Gelling temp. [1.5%]:	42°C ± 1.5°C	36°C ± 1.5°C	36 ± 1.5°C	36 ± 1.5°C
Moisture:	≤10%	≤10%	≤10%	≤10%
Sulfate:	≤0.30%	≤0.20%	≤0.25%	≤0.20%
EEO [–mr]:	≤0.10	0.23–0.26	≥0.30	0.16–0.19
Gel strength [1%]:	≥800 g/cm <sup>2</sup>	≥650 g/cm <sup>2</sup>	≥650 g/cm <sup>2</sup>	≥1,000 g/cm <sup>2</sup>

## Ordering Information – Agarose for Protein Separation

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50101	50101	SeaPlaque™ Agarose	A low melting alternative for separating proteins ≥600 kDa.	25 g
50100	50100	SeaPlaque™ Agarose	A low melting alternative for separating proteins ≥600 kDa.	125 g
50014	50014	SeaKem® ME Agarose	An ideal alternative to polyacrylamide for serum protein electrophoresis	500 g
50011	50011	SeaKem® ME Agarose	An ideal alternative to polyacrylamide for serum protein electrophoresis	25 g
50010	50010	SeaKem® ME Agarose	An ideal alternative to polyacrylamide for serum protein electrophoresis	125 g
50041	50041	SeaKem® HGT Agarose	High gelling temperature, high clarity agarose for use in counter-immunoelectrophoresis and crossed immunoelectrophoresis	25 g
50040	50040	SeaKem® HGT Agarose	High gelling temperature, high clarity agarose for use in counter-immunoelectrophoresis and crossed immunoelectrophoresis	125 g
50031	50031	SeaKem® HEE0 Agarose	A very high EEO agarose useful in applications requiring significant cathodal migration, such as immunoelectrophoresis of IgG and IgM. May also be blended with lower EEO agarose to achieve a specific EEO value.	25 g
50030	50030	SeaKem® HEE0 Agarose	A very high EEO agarose useful in applications requiring significant cathodal migration, such as immunoelectrophoresis of IgG and IgM. May also be blended with lower EEO agarose to achieve a specific EEO value.	125 g
50021	50021	SeaKem® HE Agarose	A high EEO agarose that provides enhanced resolution in immunoelectrophoresis, crossed immunoelectrophoresis, counter-immunoelectrophoresis, and serum protein electrophoresis.	25 g
50020	50020	SeaKem® HE Agarose	A high EEO agarose that provides enhanced resolution in immunoelectrophoresis, crossed immunoelectrophoresis, counter-immunoelectrophoresis, and serum protein electrophoresis.	125 g
50152	50152	SeaKem® Gold Agarose	Effective for separating proteins ≥600 kDa	25 g
50150	50150	SeaKem® Gold Agarose	Effective for separating proteins ≥600 kDa	125 g
50181	50181	MetaPhor™ Agarose	Effective for separating proteins ≥600 kDa	25 g
50180	50180	MetaPhor™ Agarose	Effective for separating proteins ≥600 kDa	125 g
50202	50202	IsoGel™ Agarose	For use in isoelectric focusing	25 g

Related Products	Page
AccuGENE™ 1 M Tris HCl Buffer	331
GelBond® Support Film Sheets	333
Precast IsoGel™ Agarose IEF Plates	352

## ProSieve™ 50 Acrylamide Gel Solution

Modified Acrylamide Formulation for High Performance Electrophoresis of Large Proteins

### ■ Benefits

- **Gradient separation** – From easy-to-cast single concentration gels
- **Easy-to-handle** – Gels are more durable than standard acrylamide
- **Sharp resolution** – Resolves large proteins (>200 kDa)
- **Fast** – Shorter destaining times and faster protein mobility times
- **Low background** – Even when used with silver stain

### ■ Applications

- Protein gel electrophoresis

 18°C to 26°C

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### Ordering Information – ProSieve™ 50 Acrylamide Gel Solution

Cat. No. NA	Cat. No. EU	Product Name	Product Description	Size
50617	50617	ProSieve™ 50 Acrylamide Gel Solution	50% concentration	125 mL
50618	50618	ProSieve™ 50 Acrylamide Gel Solution	50% concentration	250 mL