

Buffers & Sequencing Reagents

Buffers

Chemicals

Sequencing & Staining Kits



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Phone: +82-42-930-8777 Email: reagents-support@bioneer.com

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01 Buffers Buffers



Buffers 323





Buffers

Overview

Bioneer produces over 40 types of buffer and chemical essential for life science research. Those are needed for fundamental experiments, electrophoresis buffers, and phenols used in DNA/RNA extraction.

The Sequencing Kit and Silver Staining Kit are key products for sequence analysis, and have 20 years of Bioneer know-how and patented technology designed within.

All Bioneer buffers and chemicals are produced under a strict quality control system and are provided to customers only after passing the most stringent quality tests. Bioneer's dependable buffers and chemicals will be at your service all the time.



Buffers

Product Name	Size	Description	Cat. No.
40% Acrylamide	500 ml	For acrylamide gel electrophoresis Acrylamide Bis-acrylamide Filtered with 0.2 µm pore size Store at 4°C	C-9001
5X TBE	1 Gal	For agarose & acrylamide gel electrophoresis Trizma base Boric acid 0.5M EDTA (pH 8.0) Autoclaved and DNase, RNase free Store at room temperature	C-9002
20X SSC	500 ml	For hybridization Sodium chloride Sodium citrate Adjust the pH to 7.0 with NaOH Autoclaved and DNase, RNase free Store at room temperature	C-9003
50X TAE	500 ml	For agarose gel electrophoresis Trizma base Acetic acid 0.5M EDTA (pH 8.0) Autoclaved and DNase, RNase free Store at room temperature	C-9004
TE (pH 8.0)	500 ml	10 mM Tris-HCl (pH 8.0) 1 mM EDTA Autoclaved and DNase, RNase free Store at room temperature	C-9005
TE (pH 7.6)	500 ml	10 mM Tris-HCl (pH 7.6) 1 mM EDTA Autoclaved and DNase, RNase free Store at room temperature	C-9005-1
TE (pH 7.4)	500 ml	10 mM Tris-HCl (pH 7.4) 1 mM EDTA Autoclaved and DNase, RNase free Store at room temperature	C-9005-2
1M Tris-HCl(pH 8.0)	500 ml	Trizma base Adjust the pH to 8.0 with HCl Autoclaved and DNase, RNase free Store at room temperature	C-9006



Buffers

Product Name	Size	Description	Cat. No.
1M Tris-HCl (pH 7.6)	500 ml	Trizma base Adjust the pH to 7.6 with HCl Autoclaved and DNase, RNase free Store at room temperature	C-9006-1
1M Tris-HCl (pH 7.4)	500 ml	Trizma base Adjust the pH to 7.4 with HCl Autoclaved and DNase, RNase free Store at room temperature	C-9006-2
0.5M EDTA (pH 8.0)	500 ml	EDTA Adjust the pH to 8.0 with NaOH Autoclaved and DNase, RNase free Store at room temperature	C-9007
3M Sodium Acetate (pH 5.2)	500 ml	Sodium acetate Adjust the pH to 5.2 with acetic acid Autoclaved and DNase, RNase free Store at room temperature	C-9008
3M Sodium Acetate (pH 7.0)	500 ml	Sodium acetate Adjust the pH to 7.0 with acetic acid Autoclaved and DNase, RNase free Store at room temperature	C-9008-1
EtBr (10 mg/mL)	25 ml	Ethidium bromide Distilled water Store at 4°C	C-9009
Sequencing gel loading buffer	2 ml	Deionized formamide 0.5M EDTA (pH8.0) 0.025% Xylene cyanol FF 0.025% Bromophenol blue Store at -20°C	C-9010
Deionized sterile DW	500 ml	Third distilled Water Filtered with 0.2 µm pore size Autoclaved and DNase, RNase free Store at room temperature	C-9011
Deionized Formamide	500 ml	Assay 99.7% Hygroscopic CH ₃ NO/FW : 45.04 Store at 4°C	C-9012
Phenol	500 ml	Redistilled and collected at 182°C Mp : 40±2°C / bp : 182°C Flash point : + 79°C Density : 1.0710 C ₆ H ₆ O/FW : 94.1 Store at -20°C	C-9013



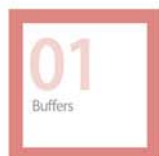
Buffers

Product Name	Size	Description	Cat. No.
Equilibrated Phenol A	500 ml	Suitable for use in RNA purification Saturated with 0.1M citrate buffer (pH 4.3) Phenol phase is pH 4.3±0.2 C ₆ H ₆ O/FW : 94.1 Store at 4°C	C-9014
Equilibrated Phenol B	500 ml	Suitable for use in DNA purification Saturated with 0.1M Tris-HCl (pH 8.0) 1 mM EDTA, phenol phase is pH 8.0±0.2 C ₆ H ₆ O/FW : 94.1 Store at 4°C	C-9015
5:1 Phenol:Chloroform	500 ml	Suitable for use in RNA purification Saturated with 0.1M citrate buffer (pH 4.3) Phenol phase is pH 4.3±0.2 C ₆ H ₆ O/FW : 94.1 Store at 4°C	C-9016
25:24:1 Phenol : Chloroform : Isoamylalcohol	500 ml	Suitable for use in DNA purification Saturated with 0.1M Tris-HCl (pH 8.0) 1 mM EDTA, phenol phase is pH 8.0±0.2 Phenol:Chloroform:Isoamylalcohol(25:24:1) Store at 4°C	C-9017
Accu-UV Gel Mix	30 ml	For slab gel type polyacrylamide gel (for HT-GA) UV-Gel Mix A(250 ml bottle) 5X4 reactions UV-Gel Mix B(125 ml bottle) 5X4 reactions 0.2 µm disc filter 5 ea 50 ml syringe 5 ea 50 ml squeeze bottle 2 ea Protect from sun light Store at room temperature	C-9018
10M Ammonium acetate	500 ml	Ammonium acetate Filtered with 0.45 µm pore size Store at 4°C	C-9019
1M Potassium acetate (pH 7.5)	500 ml	Potassium acetate Adjust the pH to 7.5 with 2M acetic acid Autoclaved and DNase, RNase free Store at 4°C	C-9020
1M CaCl ₂ (Calcium Chloride)	500 ml	For preparing competent cells CaCl ₂ ·2H ₂ O Filtered with 0.2 µm pore size Store at 4°C	C-9021
1M MgCl ₂ (Magnesium Chloride)	500 ml	MgCl ₂ ·6H ₂ O Autoclaved and DNase, RNase free Dispense into aliquots Store at 4°C	C-9022



Buffers

Product Name	Size	Description	Cat. No.
1M MgSO ₄ (Magnesium sulfate)	500 ml	MgSO ₄ ·7H ₂ O Autoclaved and DNase, RNase free Store at room temperature	C-9023
Phosphate-buffered saline(PBS)	500 ml	Sodium chloride Potassium chloride Na ₂ HPO ₄ KH ₂ PO ₄ Adjust the pH to 7.4 with HCl Autoclaved and DNase, RNase free Store at room temperature	C-9024
5M NaCl (Sodium chloride)	500 ml	Sodium chloride Autoclaved and DNase, RNase free Store at room temperature	C-9025
1M KCl (Potassium chloride)	500 ml	Potassium chloride Autoclaved and DNase, RNase free Store at room temperature	C-9026
10% Sodium dodecyl sulfate(SDS,Sodium lauryl sulfate)	500 ml	SDS Heat to 68°C to assist dissolution Adjust the pH to 7.2 with HCl Store at room temperature	C-9027
20X SSPE	500 ml	For hybridization Sodium chloride NaH ₂ PO ₄ ·H ₂ O EDTA Adjust the pH to 7.4 with NaOH Autoclaved and DNase, RNase free Store at room temperature	C-9028
6X Agarose Gel Loading Buffer	2 ml	For DNA electrophoresis 40 % Sucrose 0.05 % Bromophenol blue 0.05 % Xylene cyanol FF Store at -20°C	C-9029
DEPC-DW	500 ml	For RNA Water DEPC(Diethyl pyrocarbonate) Stirred for overnight Autoclaved and DNase, RNase free Store at room temperature	C-9030
10X MOPs Buffer	500 ml	For denaturing agarose gel electrophoresis(for RNA) 200 mM MOPs 50 mM Sodium acetate (pH 7.0) 10 mM EDTA Autoclaved and DNase, RNase free Store at room temperature	C-9031



Buffers

Product Name	Size	Description	Cat. No.
RNA Loading Buffer (without EtBr)	2 ml	For RNA electrophoresis Deionized formamide Formaldehyde 10X MOPs buffer 500mM EDTA (pH7.4) 0.025% Xylene cyanol FF 0.025% Bromophenol blue Store at -20°C	C-9032
10N NaOH (Sodium hydroxide)	500 ml	Sodium hydroxide Store at room temperature	C-9034



Bioneer Corporation

02 Chemicals

Chemicals



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Chemicals

■ IPTG(Isopropyl-β-D-thiogalactopyranoside)

IPTG is an inducer of b-galactosidase activity in many bacteria. It binds and inhibits lac repressor which prevents transcription of lac operon. IPTG-repressor complex does not bind to lac gene. IPTG is soluble in water.

Product Name	Size	Description	Cat. No.
IPTG, 99% (Isopropyl-β-D -thiogalactopyranoside)	1 g	Formula : C ₉ H ₁₈ O ₅ S M.W. : 238.3 Form : Dry powder Store at 4°C	C-8001
IPTG, 99% (Isopropyl-β-D -thiogalactopyranoside)	5 g	SAME as above	C-8001-1
IPTG, 99% (Isopropyl-β-D -thiogalactopyranoside)	25 g	SAME as above	C-8001-2

■ X-Gal (5-Bromo-4chloro-3-indolyl-β-D-galactopyranoside)

X-Gal is a histochemical substrate for b-galactosidase which is expressed in lac gene. It is hydrolyzed in the presence of this enzyme. Colonies grown on agar medium containing X-Gal produce blue color. X-Gal is soluble in Dimethyl formamide(DMF).

Product Name	Size	Description	Cat. No.
X-Gal(5-Bromo-4- chloro-3-indolyl-βD -galactopyranoside)	100 mg	Formula : C ₁₄ H ₁₅ BrClNO ₆ M.W. : 408.6 Concentration: 50 mg/ml in dimethylformamide Store at -20°C	C-8002
X-Gal(5-Bromo-4- chloro-3-indolyl-βD -galactopyranoside)	500 mg	SAME as above	C-8002-1

■ Agarose

Product Name	Size	Description	Cat. No.
Agarose	100 g	Form : White powder Sulphate <0.01% Gel strength (1.5 %)>1,600 g/cm ² Melting temp (1.5 %) 88~90°C Gel temp (1.5 %) 37~39°C Store at room temperature	C-9100
Agarose	500 g	SAME as above	C-9100-1



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Sequencing & Staining Kits

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<i>Top</i> [™] DNA Sequencing Kit	334
<i>SilverStar</i> [®] Staining Kit	335

Sequencing & Staining Kits



AccuPower® DNA Sequencing Kit

Overview

AccuPower® DNA Sequencing Kit is a premix-type product, which contains all reagents for DNA sequencing lyophilized in one tube so that the DNA sequence can be analyzed rapidly and accurately. Because sequencing reaction is run at high temperatures during thermal cycling, alkaline denaturation of double-stranded DNA is not necessary and problems from the template DNA secondary structure and high GC content can be minimized. The product also contains 7-deaza dGTP, minimizing band compression. The best sequencing results can be obtained since band intensity background is minimized by using sequencing grade Top™ DNA polymerase, of which 5'→3' exonuclease activity is deactivated by cloning DNA polymerase gene of *Thermus thermophilus* into *E.coli* and manipulating the gene.

■ Features and Benefits

• Sensitivity & reproducibility

All components necessary for a successful reaction have been dispensed as a single-reaction portion in one tube for convenience, and the patented AccuPower® technology provides unrivaled reagent stability and results superior reproducibility.

All components are premixed and freeze-dried in each G/A/T/C tube.

G mix : ddGTPs/dNTPs

A mix : ddATPs/dNTPs

T mix : ddTTPs/dNTPs

C mix : ddCTPs/dNTPs

**A specific dye which doesn't affect the sequencing reaction is included to enable to check mixing process and to monitor the loss of reaction solution.

**It minimizes experimental errors significantly through reduction of repetitive and tedious pipetting and mixing.

■ Storage

Store at -20°C

■ Ordering Information

Cat. No.	Product Description
K-1010	AccuPower® DNA Sequencing Kit, 0.5 ml tube
K-1010-1	AccuPower® DNA Sequencing Kit, 0.2 ml 8-strip tubes

■ Experimental data

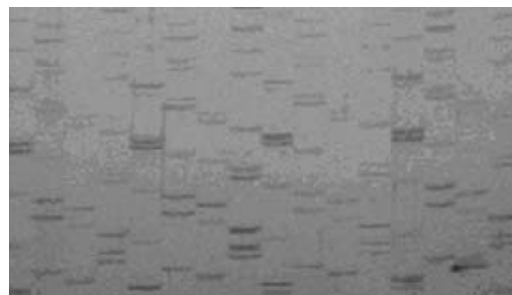


Figure 1. The sequence analysis of plasmid DNA
One µg of the purified plasmid DNA was sequenced using AccuPower® DNA Sequencing Kit (K-1010) and stained by Silverstar® Staining Kit (K-1050).

References 1. Optimal concentration of template DNA and primer

PCR product(200 bp)	100~300 ng
Primer(17-24mer)	20~30 pmoles
Plasmid DNA(3,000 bp)	1~2 ug
Primer(17-24mer)	20~30 pmoles

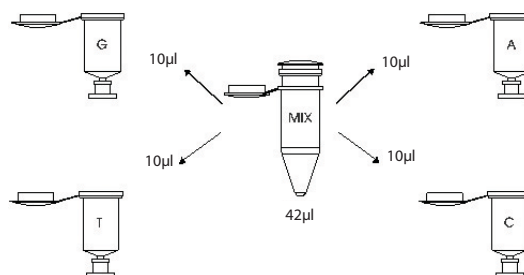
References 2. Primer Sequences

M13/pUC(-47) Forward Primer 24 mers

5' d(CGCCAGGGTTTCCCAGTCACGAC)-3'

M13/pUC(-48) Reverse Primer 24 mers

5' d-d(AGCGGATAACAATTCACAGGA)-3'





Top™ DNA Sequencing Kit

■ Features and Benefits

Top™ DNA Sequencing Kit contains all reagents for DNA sequencing. DNA sequence can be analyzed rapidly and safely by silver staining.

The best sequencing results may be obtained due to minimization of background in band intensities by using sequencing-grade Top™ DNA polymerase, of which 5' → 3' exonuclease activity is deactivated by gene manipulation.

■ Contents

Cat No. K-1020 Contents: for 100 samples

500 U	Top™ DNA polymerase
200 µl	4d/ddNTP Mixes (7-Deaza dGTP), each
500 µl	10 x Reaction Buffer
1.6 ml	Stop Solution
100 µl	M13/pUC (-47) forward primer(10 pmoles/ul)
1 ea.	Technical Manual

Cat No. K-1021 Contents: for 500 samples

2,500 U	Top™ DNA polymerase
1 mL	4d/ddNTP Mixes (7-Deaza dGTP), each
2.5 ml	10 x Reaction Buffer
8 ml	Stop Solution
500 µl	M13/pUC (-47) forward primer(10 pmoles/ul)
1 ea.	Technical Manual

Caution : Should be thawed on ice. This kit contains stabilizing reagents to maintain enzyme activity for long term storage.

■ Storage Condition

Store at -20°C.

■ Caution

Should be thawed on ice. This kit contains stabilizing reagents to maintain enzyme activity for long term storage.



Top™ DNA Sequencing Kit

Table 1. Comparison of Top™ DNA polymerase with other sequencing grade enzymes

Sequencing Grade Enzyme	Top™ DNA Polymerase	Taq polymerase	T7 Sequenase	Klenow Fragment
Processivity	High	High	Moderate	Low
Rate of incorporation (dNTPs/sec)	>600	>600	>300	12
Exonuclease activity	5'→3' exonuclease inactivated by deletion	5'→3' exonuclease inactivated by deletion	3'→5' exonuclease inactivated by deletion	3'→5' exonuclease inactivated by deletion
MW(Dalton)	60,000	80,000	84,000	75,000
Readable data(bp)	10-600	10~500	~700	
Organism	<i>Thermus thermophilus</i> HB7	<i>Thermus aquaticus</i>	T7 bacteriophage	<i>E.coli</i>

■ Ordering Information

Cat. No.	Product Description
K-1020	Top™ DNA Sequencing Kit, 100 rxns, each tube
K-1021	Top™ DNA Sequencing Kit, 500 rxns, each tube

SilverStar® Staining Kit

Overview

This Kit is designed to increase DNA detection sensitivity over 20-fold by using US and Korean patented enhancing solution*, compared to conventional silver staining system. *Silverstar*® Staining Kit enables detection of tiny amount of DNA (1 pg DNA/mm² band cross-selection) due to enhancing solution, and is applied to various analysis such as DDRT, SSCP, VNTR, and RAPD, as well as DNA sequencing gel.

With Bioneer *Silverstar*® Staining Kit you can get rapid analysis of your DNA. It takes only one and half hour to obtain the result with DNA silver staining, including three steps including fixing, staining, and developing of a gel, while it takes more than one day when radioisotope is used. In addition, you perform experiment safely since radioisotope is not required. It is also convenient to use since each reagent in the kit is packed separately and disposable.

Technical Tips

Triple distilled water must be used for silver staining.

* Covered by U.S. Pat. No. 6,127,122 and under Korean Pat. No. 229508 of Bioneer Corporation.

■ Procedures

1. Glass Coat Treatment: for long glass(separation) 15 min
2. Glass Bind Treatment: for short glass(binding) 15 min
3. Gel making & Pre-running/Running 2-4 hr
4. Fixing: by 10% acetic acid 30 min
5. Enhancing: by Enhancing solution 30 min
6. Staining: by Silver Nitrate 30 min
7. Developing: by Sodium Carbonate 5-10 min
8. Stopping & Washing: 10% acetic acid 5 min
9. Drying: on finish

■ Storage Condition

Store at room temperature

■ Experimental data

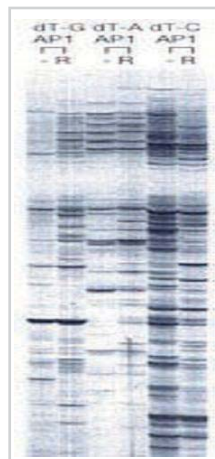


Figure1. Pattern of differentially displayed mRNA using RT/PCR PreMix.

A total RNA was purified from endothelial cell(-) and Rsa. induced endothelial cell(R). dT-(G/AC) indicates oligo dT11-(G/AC) primer and AP1 indicates arbitrary primer1.

■ Ordering Information

Cat. No.	Product Description
K-1050	<i>Silverstar</i> ® Staining Kit, 20 gels

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