



Product Specifications

DNA & RNA Purification, Electrophoresis Reagents, Polymerase Chain Reaction
Custom Primers and Probes
Hybridization and Detection Reagents

Proteinase K Solution 10mg/mL

	Catalog Number	Description	Size
<input type="checkbox"/>	40-5203-02	Proteinase K Solution 10 mg/mL; 200 μ L	200 μ L
<input type="checkbox"/>	40-5203-01	Proteinase K Solution 10 mg/mL; 1 mL	1 mL

Storage and Stability:

Shipped on ice. Store at -20°C . The undiluted enzyme is stable for at least 6 months from date of shipment when stored at -20°C .

Supplied in ready to use solution of 10 mg/mL in 20mM Tris-HCl pH 7.4, 1 mM CaCl_2 and 50% glycerol.

Product Description:

Proteinase K is an endolytic protease that cleaves peptide bonds at the carboxylic sides of aliphatic, aromatic or hydrophobic amino acids. Proteinase K is classified as a serine protease. The smallest peptide to be hydrolysed is a tetrapeptide (1). Proteinase K is useful in purifying high molecular weight genomic nucleic acids from cells and tissues.

Specifications:

Enzyme Name:	Proteinase K
Source:	<i>Tritirachium album</i>
EC Number:	3.4.21.64
Molecular Weight:	28,900 Da
Solution Form:	20mM Tris-HCl pH 7.4, 1mM CaCl_2 and 50% glycerol
Concentration:	Approximately 10 mg/mL; ~46 units/ mL
Working Concentration:	Approximately 0.05- 1 mg/mL
Optimum Temperature	55°C
Unit Definition:	One unit is the amount of enzyme that liberates folin positive amino acids and peptides corresponding to 1 μ mol tyrosine in 1 min at 37°C using hemoglobin as substrate.
Purity:	Tested for contaminating ribonucleases and deoxyribonucleases.



Recommended Product Use:

Proteinase K is a highly active and stable endopeptidase used in a wide range of applications purified from the fungus *T. album*. It cleaves peptide bonds mainly following the carboxyl group of N-substituted hydrophobic aliphatic and aromatic amino acids (1) and is classified as a serine protease. Proteinase K is useful in purifying high molecular weight nucleic acids from cells and tissues.

This product is specifically recommended for use in genomic DNA preparation and in digestion of high protein samples prior to DNA extraction procedures.

Optimum Enzymatic Conditions

1. Proteinase K is activated by 0.2 - 1% SDS or 1 - 4M urea and the recommended working concentration is 0.05- 1 mg/mL (2, 3).
2. Stable over a wide pH range: 4.0-12.5, optimum pH 7.5-8.0.
3. Optimum activity at 50-55°C and rapid denaturation occurs at temperatures above 65°C.
4. Ca²⁺ protects Proteinase K against autolysis, increases the thermal stability and has a regulatory function for the substrate binding site of Proteinase K.

Applications:

1. Used in the isolation of native, high molecular weight DNA and RNA. Proteinase K digests native proteins very effectively.
2. Remove DNases and RNases when isolating DNA and RNA from tissues or cells (2).
3. Used as a general protease to inactivate DNases, RNases and to degrade proteins.
4. Specifically modifies cell surface proteins and glycoproteins for analysis of membrane structures for protein localization (4-6).
5. Produces characteristic protein fragments used in enzyme/protein structure and function studies.

Inhibition and Inactivation

Inhibitors: Phenylmethylsulfonyl fluoride (PMSF) and diisopropyl phosphorofluoridate completely inhibit the enzyme (1). Proteinase K is not inactivated by metal chelators, by thiol-reactive reagents or by specific trypsin and chymotrypsin inhibitors

Inactivated by heating at 65°C for 20 min.

References:

1. Ebeling, W., Hennrich, N., Klockow, M., Metz, H., Orth, H. D. and Lang, H. (1974) Proteinase K from *Tritirachium album* Limber. *Eur. J. Biochem.* **47**, 91-97.
2. Wiegers, U. and Hilz, H., A new method using 'proteinase K' to prevent mRNA degradation during isolation from HeLa cells, *Biochem. and Biophys. Res. Commun.*, **44**, 513-519, 1971.
3. Hilz, H., et al., Stimulation of proteinase K action by denaturing agents: application to the isolation of nucleic acids and the degradation of "masked" proteins, *Eur. J. Biochem.*, **56**, 103-108, 1975.
4. Gross-Bellard, M., Oudet, P. and Chambon, P. (1973) *Eur. J. Biochem.* **36**, 32-38.
5. Hansen, J. N. (1974) *Prep. Biochem.* **4**, 473-488.
6. Kasche, V., Zollner, R., Amneus, H. and Naslund, L. (1981) *Prep. Biochem.* **11**, 233-250.

Ordering Information

Product	Catalog No.	Size
Proteinase K; 10 mg/ml; 200 µL	40-5203-02	200 µL
Proteinase K; 10 mg/ml; 1 mL	40-5203-01	1 mL
RNase A solution, DNase Free. 2 mg/ml; 200 µL	40-5101-02	400 µg
RNase A solution, DNase Free. 2 mg/mL; 1 mL	40-5101-10	2 mg
RNase A solution, DNase Free. 10 mg/mL; 1 mL	40-5101-01	10 mg
DNase I, RNase-free; 2u/µL	40-5111-05	500 units
Lytic Enzyme; 4000 units/mL	40-5205-02	200 µL
Glycogen Solution; 10 mg/mL	40-5112-02	200 µL

Related Products Ordering Information

Omni-Pure™ DNA & RNA Purification Systems

Product	Catalog No.	Size* (Purifications)
Omni-Pure™ Blood DNA Purification System	40-4010-01	100
Omni-Pure™ Blood DNA Purification System	40-4010-05	500
Omni-Pure™ Blood DNA Purification System	40-4010-10	1000
Omni-Pure™ Tissue DNA Purification System	40-4050-01	100
Omni-Pure™ Tissue DNA Purification System	40-4050-05	500
Omni-Pure™ Tissue DNA Purification System	40-4050-10	1000
Omni-Pure™ Plant DNA Purification System	40-4060-01	100
Omni-Pure™ Plant DNA Purification System	40-4060-05	500
Omni-Pure™ Plant DNA Purification System	40-4060-10	1000
Omni-Pure™ Viral DNA Purification System	40-3720-01	100
Omni-Pure™ Viral DNA Purification System	40-3720-05	500
Omni-Pure™ Microbial DNA Purification System	40-3700-01	100
Omni-Pure™ Microbial DNA Purification System	40-3700-05	500
Omni-Pure™ Viral RNA Purification System	40-3650-01	100
Omni-Pure™ Viral RNA Purification System	40-3650-05	500

*Sample volume for each purification system varies. Each purification yields sufficient quantity for desired applications.

Omni-Pure™ Plasmid DNA Purification Systems

Product	Catalog No.	Size*
Omni-Pure™ Plasmid DNA Purification System	40-4020-01	100
Omni-Pure™ Plasmid DNA Purification System	40-4020-05	500

*Sample volume for each purification system varies. Each purification yields sufficient quantity for desired applications.

Related Products Ordering Information

Omni-Clean™ Gel DNA Purification and Concentration Systems

Product	Catalog No.	Size*
Omni-Clean™ Gel DNA Beads Purification System	40-4110-10	100
Omni-Clean™ Gel DNA Beads Purification System	40-4110-50	500
Omni-Clean™ Gel DNA Spin Column Purification System	40-4120-10	100
Omni-Clean™ Gel DNA Spin Column Purification System	40-4120-50	500
Omni-Clean™ DNA Beads Concentration System	40-4130-10	100
Omni-Clean™ DNA Beads Concentration System	40-4130-50	500
Omni-Clean™ DNA Spin Column Concentration System	40-4140-10	100
Omni-Clean™ DNA Spin Column Concentration System	40-4140-50	500

*Sample volume for each purification system varies. Each purification yields sufficient quantity for desired applications.

PCR Kits & Reagents

Product	Catalog No.	Size
Taq DNA Polymerase; 400 units; 5 µ/µl; 80 µL	40-5200-40	400 units
Taq PCR Kit; 200 x 50 µL reactions	40-5211-01	200 reactions
Taq PCR Kit with controls; 200 reactions	40-5212-01	200 reactions
PCR Master Mix (2X); 100 x 50 µl reactions (2 tubes x 1.3 ml)	40-5213-01	100 reactions
PCR Master Mix (2X); 200 x 50 µl reactions (4 tubes x 1.3 ml)	40-5213-02	200 reactions

PCR Reagents

Product	Catalog No.	Size
Taq DNA Polymerase 300 units; 5 µ/µL; 60 µL	40-5200-30	300 units
PCR Buffer Standard (10 X)	40-3060-16	1.6 mL
PCR Buffer Mg Free (10 X)	40-3061-16	1.6 mL
Taq Polymerase Dilution Buffer; 1 mL	40-3070-10	1 mL
dNTP 2mM (10X)	40-3021-11	1.1 mL
MgCl ₂ ; 25 mM	40-3022-16	1.6 mL
Omni-Marker™ Universal Unlabeled	40-3005-01	100 µL
Primer and Template Mix; 500 bp; 40 reactions	40-2026-60PT	100 µL
Nuclease Free Water	40-3001-16	1.6 mL
DMSO	40-3031-10	1 mL
TMAC (Tetramethyl ammonium chloride) 100 mM	40-3053-10	1 mL
KCl 300 mM	40-3059-10	1 mL
Betaine; 5M	40-3032-10	1 mL

All Gene Link products are for research use only

Related Products Ordering Information

Loading Buffers

Product	Catalog No.	Size
Gel Loading Buffer 5X BPB/XC non-denaturing	40-3002-10	1 mL
Gel Loading Buffer 5X BPB/XC non-denaturing	40-3002-15	15 mL
Gel Loading Buffer 10X BPB/XC non-denaturing	40-3003-10	1 mL
Gel Loading Buffer 10X BPB/XC non-denaturing	40-3003-15	15 mL
Gel Loading Buffer 5X Orange G/XC non-denaturing	40-3004-10	1 mL
Gel Loading Buffer 5X Orange G/XC non-denaturing	40-3004-15	15 mL
Gel Loading Buffer 2X BPB/XC Denaturing for Sequencing	40-5027-10	1 mL
Gel Loading Buffer 2X BPB/XC Denaturing for Sequencing	40-5027-15	15 mL
DNA SDS Gel Loading Buffer 5X BPB/XC DNA binding protein denaturing buffer	40-5028-10	1 mL
DNA SDS Gel Loading Buffer 5X BPB/XC DNA binding protein denaturing buffer	40-5028-15	15 mL
RNA Gel Loading Buffer 2X BPB/XC with ethidium bromide	40-5029-10	1 mL
RNA Gel Loading Buffer 2X BPB/XC with ethidium bromide	40-5029-15	15 mL
RNA Gel Loading Buffer 2X BPB/XC without ethidium bromide	40-5030-10	1 mL
RNA Gel Loading Buffer 2X BPB/XC without ethidium bromide	40-5030-15	15 mL

Buffers & Reagents

Product	Catalog No.	Size
Agarose LE Molecular Biology Grade; 100 gms	40-3010-10	100 gms
Agarose LE Molecular Biology Grade; 500 gms	40-3010-50	500 gms
Agarose Tablets, 0.5 gm each	40-3011-10	100 tablets
TAE Buffer; 50 X Concentrate	40-3007-01	100 mL
TBE Buffer; 5 X Concentrate	40-3008-10	1000 mL
Hybwash A, Hybridization Wash Solution	40-5020-20	200 mL
Hybwash B, Hybridization Wash Solution	40-5021-10	100 mL
10x Washing buffer	40-5025-20	200 mL
10% Blocking solution	40-5026-10	100 mL
Seq. Loading buffer	40-5027-00	1 mL
10x AP Detection buffer	40-5031-10	100 mL
Lumisol™ I Hybridization Solution; contains formamide	40-5022-20	200 mL
Lumisol™ II Hybridization Solution; for non-toxic hybridizations	40-5023-20	200 mL
Lumisol™ III Hybridization Solution; for oligo probes	40-5024-20	200 mL

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