



# Product Catalog

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

1-800-257-1565

# Protein Extraction

## EasyPrep Bacterial Protein Extraction Buffer Cat. No.10449-0

Our buffer is designed for rapid and easy extraction of total proteins from bacteria without the use of sonication or precipitation processes. It offers several-fold increases in the yield of soluble proteins, and the extracted proteins are highly stable since there is no repeated freeze-thaw involved.



Fig. 01: Total protein extracted by EasyPrep Bacterial Buffer and ran on SDS-PAGE gel

## EasyPrep Mammalian Protein Extraction Buffer Cat. No. 10452-0

The buffer is designed for extraction of cytoplasmic and nuclear proteins from mammalian cells requiring minimal mechanical disruption. It is a simple process utilizing a proprietary mild and non-denaturing detergent for rapid extraction and solubilization of total proteins from most cellular compartments. It offers several-fold increase in soluble protein yield with higher stability and no repeated freeze-thaw.



## EasyPrep Bacterial Protein Extraction Kit Cat. No 10450-0



The kit is designed for extracting high quality total proteins from bacteria, without the use of sonication or precipitation processes, by utilizing a proprietary non-ionic detergent and buffering system along with Lysozyme. It offers several-fold increases in the yield of soluble proteins with higher stability since there is no repeated freeze-thaw involved.

## EasyPrep Tissue Protein Extraction Buffer Cat. No. 10453-0

Our buffer is designed for quick and easy extraction of total proteins from tissue samples without sonication or precipitation processes. This composition utilizes a proprietary buffering agent along with a detergent that displays high efficacy against several tissue types. The extracted proteins can be further analyzed using different proteomic approaches and techniques.



## EasyPrep Insect Protein Extraction Buffer Cat. No. 10451-0

This product is designed for fast and easy extraction of total proteins from insect cells without sonication. Offers a several-fold increase in the yield of soluble proteins with no repeated freeze-thaw steps, thus high stability. It is compatible with multiple downstream applications such as 6xHis-tagged protein purification, BCA Protein Assay, ELISA, Western Blots, and ion exchange chromatography, etc.



## EasyPrep Yeast Protein Extraction Buffer Cat. No. 10454-0

This buffer is specifically designed for rapid and effective extraction of total proteins from yeast samples utilizing a proprietary detergent and buffering system. The buffer is suitable for protein extraction from a wide variety of yeast strains. The extracted proteins can be further analyzed using various proteomic assays.



# Protein Extraction

## EasyPrep Yeast Protein Extraction Kit Cat. No. 10455-0



This kit was developed as a three-component system supplied with (1) EasyPrep Yeast Protein Extraction Buffer, (2) Yeast Suspension Buffer, and (3) Lyticase-SP enzyme for convenient and improved cell lysis and extraction of total proteins from different yeast strains.

## RIPA Lysis & Extraction Buffer Cat. No. 10456-0, 10456-1



This product is supplied as a ready-to-use solution for efficient cellular lysis, protein extraction, and solubilization from a wide range of cultured mammalian cells and various subcellular structures such as membranes, cytoplasm, and nuclear proteins without causing any protein degradation or impact on the protein biological activity.

## EasyPrep Universal Protein Extraction Kit Cat. No. 10457-0



Our Universal Protein Extraction (UPE) kit has been designed for a simple yet efficient extraction and solubilization of total proteins from various types of cells and tissues for denaturing proteomics applications. The kit is suitable for extracting total proteins from animal and plant tissues, bacteria, mammalian, and yeast cells. It is supplied with Universal Protein Extraction Solutions-1 & 2 along with a Protease Inhibitor Cocktail-EDTA Free at 100X concentration. This product allows for a rapid procedure with only  $\leq 30$  minutes required to extract high-quality proteins without any degradation.

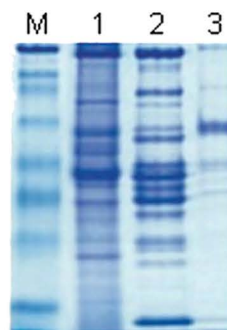


Fig. 02: Total protein extracted by EasyPrep Protein Extraction Solution and ran on SDS-PAGE gel. Lane M: Marker; 1: rat heart; 2: cow muscle; 3: cow subcutaneous fat

Cat. No.	Product Name	Size
10449-0	EasyPrep Bacteria Protein Extraction Buffer	250 ml
10450-0	EasyPrep Bacteria Protein Extraction Kit	100 preps
10451-0	EasyPrep Insect Protein Extraction Buffer	250 ml
10452-0	EasyPrep Mammalian Cell Protein Extraction Buffer	250 ml
10453-0	EasyPrep Tissue Protein Extraction Buffer	250 ml
10454-0	EasyPrep Yeast Protein Extraction Buffer	250 ml
10455-0	EasyPrep Yeast Protein Extraction Kit	100 preps
10456-0	RIPA Lysis & Extraction Buffer	125 ml
10456-1	RIPA Lysis & Extraction Buffer	250ml
10457-0	EasyPrep Universal Protein Extraction Kit	50 preps

# Protein Purification

Protein purification is one of the important steps in proteomics research studies for characterizing the structure and functions of the proteins. Cepham Life Sciences has a broad selection of resins, based on the principle of affinity chromatography for the purification of different types of proteins and antibodies. These resins are specific to the protein of interest as per the ligand specificity, and they have been designed for greater affinity to maximize protein yield.

## Cobalt-IDA Agarose Resin Cat. No. 10581-0, 10581-1

Our Cobalt-IDA Agarose Resin is an IDA cross-linked Agarose resin and consists of iminodiacetic acid groups ligated by stable ether linkages via a spacer arm. IDA is a tridentate chelating agent, covalently coupled to cross-linked agarose beads. This resin is loaded with  $\text{Co}^{2+}$  and the resulting resin is ideal for rapid purifications of His-tagged proteins.



## Glutathione Agarose Resin Cat. No. 10587-0, 10587-1, 10587-2

Glutathione Agarose Resin contains glutathione covalently bound to agarose beads for use in affinity purification of glutathione-S transferase (GST) and GST fusion proteins as it has high binding affinity and specificity to the Glutathione S-transferase (GST) protein. GST-tagged proteins can be highly purified, and bound GST-tagged proteins are easily eluted from the resin with buffers containing reduced glutathione.



## Cobalt-NTA Agarose Resin Cat. No. 10584-0, 10584-1

Cobalt-NTA Agarose Resin is used for preparative purification of histidine-tagged recombinant proteins from all prokaryotic and eukaryotic expression systems. Our Cobalt-NTA Agarose Resin consists of highly cross-linked 6% agarose with an immobilized chelating group. The talon ligand is a tetra-dentate chelator charged with cobalt.



## Nickel-IDA Agarose Resin Cat. No. 10590-0, 10590-1, 10590-2

Nickel-IDA Agarose Resin contains IDA, a tridentate chelating agent, covalently coupled to cross-linked agarose beads and consists of iminodiacetic acid groups ligated by stable ether linkages via a spacer arm. Our Ni-IDA Agarose Resin is ideal for rapid purification of His-tagged proteins, as it is loaded with  $\text{Ni}^{2+}$  and recognizes two exposed histidines for an appreciable retention of a protein with a 4X or 6XHis tag.



## Nickel-NTA Agarose Resin

Cat. No. 10593-0, 10593-1, 10593-2

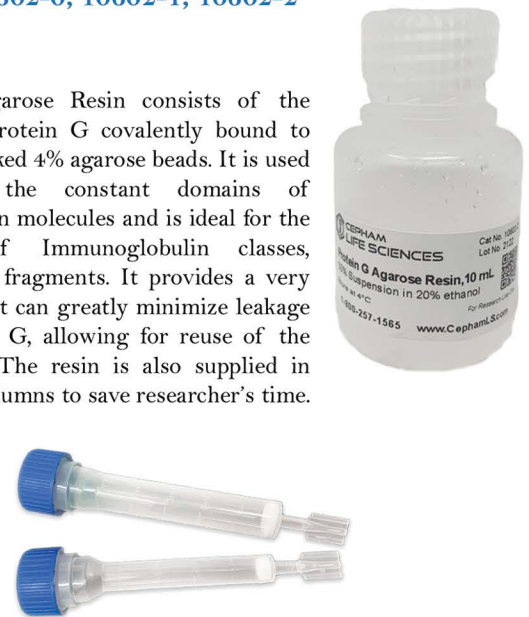
The Nickel-NTA Agarose Resin consists of beads of highly crosslinked 6% Agarose coupled with Nitrilotriacetic acid (NTA). NTA is a tetravalent chelating agent, covalently coupled to cross-linked agarose beads, providing a higher specificity and lower ion leaching than IDA linked resins. The Ni-NTA Resin can be used to purify 6xHis-tagged proteins expressed in series of expression vectors, such as E. coli, yeast, insect cells and mammalian cells. NTA resins have also been shown to be more robust in the presence of higher concentrations of EDTA but may require a higher imidazole concentration for protein elution. This resin is loaded with Ni<sup>2+</sup> and is ideal for rapid purifications of His-tagged proteins. The structure of Ni-NTA is compatible with a certain concentration of reducing agents, denaturing agents, detergents and other additives.



## Protein G Agarose Resin

Cat. No. 10602-0, 10602-1, 10602-2

Protein G Agarose Resin consists of the recombinant Protein G covalently bound to highly crosslinked 4% agarose beads. It is used for binding the constant domains of immunoglobulin molecules and is ideal for the purification of Immunoglobulin classes, subclasses and fragments. It provides a very stable bond that can greatly minimize leakage of the Protein G, allowing for reuse of the affinity resin. The resin is also supplied in ready to use columns to save researcher's time.



## Protein A Agarose Resin

Cat. No. 10596-0, 10596-1, 10596-2

Protein A Agarose Resin consists of recombinant Protein A covalently bound to cross-linked agarose beads. It provides a very stable bond that can greatly minimize leakage of the Protein A allowing for reuse of the affinity resin. Protein A resin is good for the purification of a wide range of Immunoglobulins of different mammalian species.



## Streptavidin Agarose Resin

Cat. No. 10605-0, 10605-1, 10605-2

Streptavidin is a tetrameric protein containing 4 biotin binding sites and does not contain a carbohydrate, which significantly reduces the amount of non-specific binding. Streptavidin Agarose Resin consists of streptavidin covalently bound to 6% crosslinked agarose beads with high affinity for biotin binding (>300 nmol/ml of gel). It can be used for affinity purifications by separating biotinylated proteins from nonbiotinylated proteins, and for affinity purification of antigens when used with biotinylated antibodies. The resin is supplied as a slurry, as well as in ready to use columns.



## Protein A/G Agarose Resin

Cat. No. 10599-0, 10599-1, 10599-2

Protein A/G Agarose Resin consists of recombinant protein A and protein G ligands, covalently bound to 4% crosslinked agarose beads, which minimizes leakage of Protein A/G and allowing reuse of the resin. Protein A/G binds to IgG subclasses but does not bind IgA, IgM, or serum albumin, which makes it an excellent tool for purification and detection of monoclonal antibodies from IgG subclasses without interference from IgA, IgM, and serum albumin.



## Protein Purification

Cat. No.	Product Name	Size
10581-0	Cobalt-IDA Agarose Resin	10 ml
10581-1	Cobalt-IDA Agarose Resin	25 ml
10582-0	Cobalt-IDA Agarose Resin, 1 ml Column	5 Columns
10583-0	Cobalt-IDA Agarose Resin, 5 ml Column	5 Columns
10584-0	Cobalt-NTA Agarose Resin	10 ml
10584-1	Cobalt-NTA Agarose Resin	25 ml
10585-0	Cobalt-NTA Agarose Resin, 1 ml spin Column	5 Columns
10586-0	Cobalt-NTA Agarose Resin, 3 ml spin Column	5 Columns
10587-0	Glutathione Agarose Resin	5 ml
10587-1	Glutathione Agarose Resin	10 ml
10587-2	Glutathione Agarose Resin	25 ml
10588-0	Glutathione Agarose Resin, 1 ml Column	5 Columns
10589-0	Glutathione Agarose Resin, 3 ml Column	5 Columns
10590-0	Nickel-IDA Agarose Resin	5 ml
10590-1	Nickel-IDA Agarose Resin	10 ml
10590-2	Nickel-IDA Agarose Resin	25 ml
10591-0	Nickel-IDA Agarose Resin, 1 ml Column	5 Columns
10592-0	Nickel-IDA Agarose Resin, 3 ml Column	5 Columns
10593-0	Nickel-NTA Agarose Resin	10 ml
10593-1	Nickel-NTA Agarose Resin	25 ml
10593-2	Nickel-NTA Agarose Resin	100 ml
10594-0	Nickel-NTA Agarose Resin, 1 ml spin Column	5 Columns
10595-0	Nickel-NTA Agarose Resin, 3 ml spin Column	5 Columns
10596-0	Protein A Agarose Resin	5 ml
10596-1	Protein A Agarose Resin	10 ml
10596-2	Protein A Agarose Resin	25 ml
10597-0	Protein A Agarose Resin, 1 ml Column	5 Columns
10598-0	Protein A Agarose Resin, 3 ml Column	5 Columns
10599-0	Protein A/G Agarose Resin	1 ml
10599-1	Protein A/G Agarose Resin	5 ml
10599-2	Protein A/G Agarose Resin	10 ml
10600-0	Protein A/G Agarose Resin, 1 ml Column	5 Columns
10601-0	Protein A/G Agarose Resin, 3 ml Column	5 Columns
10602-0	Protein G Agarose Resin	1 ml
10602-1	Protein G Agarose Resin	5 ml
10602-2	Protein G Agarose Resin	10 ml
10603-0	Protein G Agarose Resin, 1 ml Column	5 Columns
10604-0	Protein G Agarose Resin, 3 ml Column	5 Columns
10605-0	Streptavidin Agarose Resin	1 ml
10605-1	Streptavidin Agarose Resin	5 ml
10605-2	Streptavidin Agarose Resin	10 ml
10606-0	Streptavidin Agarose Resin, 1 ml Column	5 Columns
10607-0	Streptavidin Agarose Resin, 3 ml Column	5 Columns

## Purified Proteomic Grade Detergents

Our proteomic grade detergents are highly purified, sterile with extremely low aldehyde & peroxide impurities that enable the highest retention of protein activity. The extremely low conductivity levels in the purified detergent provide low ionic concentrations, which are essential in proteomics applications such as IEF and 2D electrophoresis.

### Brij® 35 (Polyoxyethylene(23)lauryl ether), 10% Aqueous Solution, Purified Proteomic Grade Cat. No. 10441-0, 10441-1



Brij® 35 is a non-ionic detergent used for solubilizing proteins. Our 10% aqueous solution is a sterile, high-purity grade reagent with extremely low aldehyde & peroxide impurities. Low conductivity levels thereby provide low ionic concentrations that are essential for proteomics applications.

### Brij® 58 (Polyoxyethylene(23)cetyl ether), 10% Aqueous Solution, Purified Proteomic Grade Cat. No. 10442-0, 10442-1



Brij® 58 is a non-ionic detergent used for solubilizing proteins. Our 10% aqueous solution is a highly purified, sterile product with extremely low aldehyde and peroxide impurity contents, thereby offering low conductivity levels with accompanying low ionic concentrations needed for proteomics applications.

# Purified Proteomic Grade Detergents

**Nonidet P-40; Nonylphenyl-polyethylene glycol, 10% Aqueous Solution, Purified Proteomic-Grade**  
**Cat. No. 10443-0, 10443-1**



Nonidet P-40 is a non-ionic detergent, useful for the isolation and purification of functional membrane proteins. The 10% aqueous solution of Nonidet P-40 is a highly purified formulation with extremely low aldehyde & peroxide impurities. Extremely low conductivity levels thus provide low ionic concentrations, essential for proteomics applications.

**Tween® 20 (Polyoxyethylenesorbitan monolaurate), 10% Aqueous Solution, Purified Proteomic Grade**  
**Cat. No. 10446-0, 10446-1**



Our 10% aqueous Tween® 20 is a non-ionic, highly purified and sterile detergent formulation. The product contains extremely low aldehyde & peroxide impurities that account for low ionic concentrations and high retention of protein activity, key features essential for proteomics applications.

**Triton® X-100 (Octylphenolpolyethylene glycol ether), 10% Aqueous Solution, Purified Proteomic Grade**  
**Cat. No. 10444-0, 10444-1**



Triton® X-100 is a non-ionic detergent commonly employed in proteomics. Our 10% aqueous solution is a highly purified and sterile formulation with extremely low levels of aldehyde and peroxide impurities. These low conductivity levels account for low ionic concentrations that are essential in proteomics applications.

**Tween® 80 (Polyoxyethylenesorbitan monolaurate monooleate), 10% Aqueous Solution, Purified Proteomic Grade**  
**Cat. No. 10447-0, 10447-1**



Our 10% purified Tween® 80 is a non-ionic, highly purified, and sterile detergent formulation. The product contains extremely low levels of aldehyde & peroxide impurities accounting for low ionic concentrations and highest retention of protein activity, the characteristics essential for proteomics applications.

**Triton® X-114 (Polyethylene glycol tert-octylphenyl ether), 10% Aqueous Solution, Purified Proteomic Grade**  
**Cat. No. 10445-0, 10445-1**



Triton® X-114 is a non-ionic detergent. Our 10% aqueous solution is a highly purified and sterile formulation with extremely low levels of aldehyde and peroxide impurities. These low conductivity levels result in low ionic concentrations essential for proteomics applications.

Cat. No.	Product Name	Size
10441-0	Brij® 35, 10% Aqueous Solution, Purified Proteomic Grade	5 x 10 ml Vials
10441-1	Brij® 35, 10% Aqueous Solution, Purified Proteomic Grade	10 x 10 ml Vials
10442-0	Brij® 58, 10% Aqueous Solution, Purified Proteomic Grade	5 x 10 ml Vials
10442-1	Brij® 58, 10% Aqueous Solution, Purified Proteomic Grade	10 x 10 ml Vials
10443-0	Nonidet P-40, 10% Aqueous Solution, Purified Proteomic Grade	5 x 10 ml Vials
10443-1	Nonidet P-40, 10% Aqueous Solution, Purified Proteomic Grade	10 x 10 ml Vials
10444-0	Triton® X-100, 10% Aqueous Solution, Purified Proteomic Grade	5 x 10 ml Vials
10444-1	Triton® X-100, 10% Aqueous Solution, Purified Proteomic Grade	10 x 10 ml Vials
10445-0	Triton® X-114, 10% Aqueous Solution, Purified Proteomic Grade	5 x 10 ml Vials
10445-1	Triton® X-114, 10% Aqueous Solution, Purified Proteomic Grade	10 x 10 ml Vials
10446-0	Tween® 20, 10% Aqueous Solution, Purified Proteomic Grade	5 x 10 ml Vials
10446-1	Tween® 20, 10% Aqueous Solution, Purified Proteomic Grade	10 x 10 ml Vials
10447-0	Tween® 80, 10% Aqueous Solution, Purified Proteomic Grade	5 x 10 ml Vials
10447-1	Tween® 80, 10% Aqueous Solution, Purified Proteomic Grade	10 x 10 ml Vials

## Protein Labeling

Cat. No.	Product Name	Size
10520-0	ABH (p-Azidobenzoyl Hydrazide)	100 mg
10521-0	ANB-NOS (N-5-Azido-2-nitrobenzoyloxysuccinimide)	100 mg
10522-0	APDP (N-[4-(p-Azidosalicylamido)butyl]-3...	100 mg
10523-0	APG (p-Azidophenyl Glyoxal monohydrate)	100 mg
10524-0	Avidin	10 mg
10524-1	Avidin	25 mg
10525-0	BASED (Bis [B-(4-azidosalicylamido)ethyl]disulfide)	100 mg
10526-0	Biotin Agent; d-Biotin (Vitamin H)	500 mg
10527-0	Biotin-BMMCC	50 mg
10528-0	Biotin-Hydrazide	50 mg
10529-0	Biotin-LC-Hydrazide	50 mg
10531-0	Biotin-PEG2-Amine	50 mg
10532-0	Biotin-PEG3-Amine	50 mg
10533-0	BSOCOES (Bis [2-(Succinimidooxycarbonyloxy)...	100 mg
10534-0	DPDPB (1,4-Di [3'-(2'-pyridyl)dithio]propionami...	100 mg
10535-0	DSP (Dithiobis(succinimidyl Propionate))	1 g
10536-0	DSS (Disuccinimidyl Suberate)	1 g
10537-0	DST (Disuccinimidyl Tartrate)	1 g
10538-0	DTSSP (3,3'-Dithiobis(sulfosuccinimidyl Propionate))	100 mg
10539-0	EDC (1-Ethyl-3-[3-dimethylaminopropyl]...	1 g
10540-0	EGS (Ethylene Glycol bis(succinimidyl succinate))	1 g
10541-0	EMCH (N-(E-maleimidocaproic acid hydrazide))	50 mg
10542-0	EMCS ([N-(E-maleimidocaproyloxy)-succinimi...	100 mg
10543-0	GMBS (N-Maleimidobutyryloxysuccinimide ester)	100 mg
10544-0	Iodoacetyl-LC-Biotin	50 mg
10545-0	KLH (Keyhole Limpet Hemocyanin)	10 mg
10546-0	Maleimide-PEG-SCM (Maleimide-PEG-succinimidyl...	100 mg
10547-0	MBS (m-Maleimidobenzoyl-N-hydroxysuccinim...	100 mg
10548-0	NHS-ASA (N-Hydroxysuccinimidyl-4-azidosalicylic a...	50 mg
10549-0	NHS-Biotin	50 mg
10550-0	NHS-dPEG4 -Biotin	50 mg
10551-0	NHS-LC-Biotin	50 mg
10552-0	NHS-LC-LC-Biotin	50 mg
10553-0	NHS-SS-Biotin	50 mg
10554-0	PEG2-Iodoacetyl-Biotin	50 mg
10555-0	PPF-Biotin	50 mg
10556-0	p-Hydroxyphenyl Glyoxal	100 mg
10557-0	PMPI (N-(p-Maleimidophenyl isocyanate))	50 mg
10558-0	Psoralen-PEO-Biotin	5 mg
10559-0	SATA (N-Succinimidyl S-acetylthioacetate)	100 mg
10560-0	SIAB (N-Succinimidyl(4-iodoacetyl) Aminobenzoate)	100 mg
10561-0	SMCC (Succinimidyl-4-(N-maleimidomethyl)cyc...	100 mg
10562-0	SMPB (Succinimidyl 4-(p-maleimidophenyl)Butyrate)	100 mg
10563-0	Sulfo DST (Sulfo Disulfosuccinimidyl Tartrate)	100 mg
10564-0	Sulfo EMCS ([N-(E-maleimidocaproyloxy)-sulfo	50 mg
10565-0	Sulfo GMBS (N-Maleimidobutyryloxysulfos	100 mg
10566-0	Sulfo HSAB (N-Hydroxysulfosuccinimidyl-4-azid	100 mg
10567-0	Sulfo MBS (m-Maleimidobenzoyl-N-hydroxysu...	100 mg
10568-0	Sulfo NHS (N-Hydroxysulfosuccinimide)	500 mg
10569-0	Sulfo NHS Acetate (Sulfo succinimidyl acetate)	100 mg
10570-0	Sulfo SADP (Sulfosuccinimidyl (4-azidophenyl)-...	100 mg
10571-0	Sulfo SAND (Sulfosuccinimidyl 2-(m-azido-o-n...	100 mg
10572-0	Sulfo SANPAH (Sulfosuccinimidyl 6-(4'-azido-2'...	100 mg
10573-0	Sulfo SASD Sulfosuccinimidyl-2-(p-azidosalicy	100 mg
10574-0	Sulfo SHPP, A water soluble Bolton-Hunter reagent	100 mg
10575-0	Sulfo SIAB (N-(Sulfosuccinimidyl(4-iodoacetyl)...	100 mg
10576-0	Sulfo SMCC (Sulfosuccinimidyl-4-(N-maleimidometh	100 mg
10577-0	Sulfo SMPB (Sulfo succinimidyl 4-(p-maleimi...	100 mg
10578-0	Sulfo-NHS-Biotin	50 mg
10579-0	Sulfo-NHS-LC-Biotin	50 mg
10580-0	Sulfo-NHS-LC-LC-Biotin	50 mg
11279-0	Sulfo-NHS-SS-Biotin	50 mg

## Protease Inhibitor Cocktails

When cells or tissues are undergoing lysis in the extraction process, the proteins in the sample become prone to degradation as a result of active endogenous proteases, resulting in low yield and purity. In order to block endogenous protease activity, it is highly recommended to use protease inhibitors in the protein extraction buffer. Cepham Life Sciences provide different types of protease inhibitor cocktails to cover a wide range and species-specific proteases.

### Protease Inhibitor Cocktail [100X], General EDTA Free Cat. No. 10471-0, 10471-1



Our General Protease Inhibitor Cocktail is EDTA Free and contains AEBSF, Aprotinin, Leupeptin, Bestatin, E64, and Pepstatin at 100X concentration, optimized for inhibiting a broad spectrum of proteases present in the protein samples.

### Protease Inhibitor Cocktail [100X], Bacterial Cat. No. 10472-0, 10472-1



This protease inhibitor cocktail has been specifically designed and optimized for bacterial proteases, and it contains a mixture of AEBSF, Bestatin, Pepstatin, and E-64 protease inhibitors and is EDTA Free.



# Protease Inhibitor Cocktails

**Protease Inhibitor Cocktail [100X],  
Mammalian**  
Cat. No. 10473-0, 10473-1

**SALE**



This inhibitor cocktail has been specifically designed for mammalian samples dedicated for inhibiting mammalian proteases and is EDTA Free. It contains optimized concentrations of AEBSEF, Aprotinin, Leupeptin, Bestatin, Pepstatin and E64 protease inhibitors.

**Protease Inhibitor Cocktail [100X],  
His-Tag**  
Cat. No. 10475-0, 10475-1

**SALE**



This protease inhibitor cocktail is optimized for use with recombinant protein extracts and is EDTA Free. It contains AEBSEF, Bestatin, Pepstatin, E-64 and Phosphoramidon at their optimized concentration for maximum inhibition of protease activity and preservation of His-Tag proteins.

**Protease Inhibitor Cocktail [100X],  
Plant**  
Cat. No. 10474-0, 10474-1

**SALE**



This inhibitor cocktail is designed for inhibiting plant proteases and is EDTA Free. It contains AEBSEF, Leupeptin, Bestatin, Pepstatin, E-64, and 1,10-Phenanthroline at their optimized concentration for maximum inhibition of protease activity in plant protein samples.

**Protease Assay Kit**  
Cat. No. 10476-0

**SALE**



This kit has been optimized for the assay of general proteases present in biological samples, utilizing resorufin-labeled casein as the assay substrate. It is a highly sensitive kit which precisely measures the protease activity in samples containing protease activity.

**Protease Inhibitor Cocktail [100X],  
Yeast/Fungi - Cat. No. 10673-0, 10673-1**

**SALE**



This protease inhibitor cocktail contains a mixture of protease inhibitors with broad specificity to inhibit aspartic, serine, cysteine, and metalloproteases and is EDTA Free. It provides an excellent inhibition of protease activities during protein purification from yeast and fungal samples, specifically optimized and tested for *Saccharomyces cerevisiae*.

Cat. No.	Product Name	Size
10471-0	Protease Inhibitor Cocktail [100X], General - EDTA Free	1 ml
10471-1	Protease Inhibitor Cocktail [100X], General - EDTA Free	2 ml
10472-0	Protease Inhibitor Cocktail [100X], Bacterial	1 ml
10472-1	Protease Inhibitor Cocktail [100X], Bacterial	2 ml
10473-0	Protease Inhibitor Cocktail [100X], Mammalian	1 ml
10473-1	Protease Inhibitor Cocktail [100X], Mammalian	2 ml
10474-0	Protease Inhibitor Cocktail [100X], Plant	1 ml
10474-1	Protease Inhibitor Cocktail [100X], Plant	2 ml
10475-0	Protease Inhibitor Cocktail [100X], His-Tag	1 ml
10475-1	Protease Inhibitor Cocktail [100X], His-Tag	2 ml
10673-0	Protease Inhibitor Cocktail [100X], Yeast / Fungi	1 ml
10673-1	Protease Inhibitor Cocktail [100X], Yeast / Fungi	2 ml
10476-0	Protease Assay Kit	50 Assays

# Phosphatase Inhibitor Cocktails

The phosphorylation and de-phosphorylation of proteins are critical processes in the cells. In biological pathways, these processes often function as molecular on/off switches for key regulators within the cells, such as signal transduction, cell division, and apoptosis. To study the phosphorylation signaling events effectively, endogenous phosphatases must be inactivated to prevent their uncontrolled activity when the cells are lysed. Our Phosphatase Inhibitor Cocktails are optimized to preserve the modification of phosphoproteins by significantly reducing the activities of the endogenous phosphatases.

## Phosphatase Inhibitor Cocktail-I [100X] Cat. No. 10507-0, 10507-1



Our Phosphatase Inhibitor Cocktail-I contains Bromotetramisole oxalate, Cantharidin, and Microcystin-LR in their optimized concentrations. It inhibits alkaline phosphatases and serine/threonine protein phosphatases, such as PP1 and PP2A and can be used with cell and tissue lysates in a lysis buffer with or without detergents.

## Phosphatase Inhibitor Cocktail-II [100X] Cat. No. 10508-0, 10508-1



Our Phosphatase Inhibitor Cocktail-II is a mixture of five phosphatase inhibitors: Imidazole, Sodium Fluoride, Sodium Molybdate, Sodium Orthovanadate, and Sodium Tartrate Dihydrate. This cocktail inhibits the activity of acid phosphatase, alkaline phosphatase, and protein tyrosine phosphatases (PTPs). It is suitable for cell and tissue lysates in a lysis buffer with or without detergents.

## Phosphatase Inhibitor Cocktail-III [100X] Cat. No. 10509-0, 10509-1



Cell lysis for retrieving whole cell extracts results in a loss of normal cellular signaling events, and phosphatases within the extract are free to dephosphorylate proteins in an unregulated manner. Addition of phosphatase inhibitors to the cell lysis buffer aids in the preservation of phosphorylated residues at the time of cell disruption. Our Phosphatase Inhibitor Cocktail-III contains four phosphatase inhibitors: Sodium Fluoride,  $\beta$ -Glycerophosphate, Sodium Pyrophosphate Decahydrate, and Sodium Orthovanadate that provide broad spectrum inhibition of serine, threonine, and protein tyrosine phosphatases. This product can be conveniently used in cell and tissue lysates for inhibiting activities of these phosphatases.

Cat. No.	Product Name	Size
10507-0	Phosphatase Inhibitor Cocktail- I [100X]	1 ml
10507-1	Phosphatase Inhibitor Cocktail- I [100X]	2 ml
10508-0	Phosphatase Inhibitor Cocktail- II [100X]	1 ml
10508-1	Phosphatase Inhibitor Cocktail- II [100X]	2 ml
10509-0	Phosphatase Inhibitor Cocktail- III [100X]	1 ml
10509-1	Phosphatase Inhibitor Cocktail- III [100X]	2 ml

# Protein Quantitation

## Bicinchoninic Acid (BCA) Protein Assay with BSA Protein Standard

Cat. No 10477, 10477-1

Our BCA Protein Assay Kit is a detergent-compatible formulation based on bicinchoninic acid (BCA) for the colorimetric estimation of total proteins. The reaction product of this assay is purple in color, formed by the chelation of two molecules of BCA with one cuprous ion. This water-soluble complex exhibits a strong absorbance at 562 nm that is nearly linear with increasing protein concentrations over a broad working range of 20 µg/ml to 2,000 µg/ml. The assay is compatible with ionic and nonionic detergents, offers less protein-to-protein variation than dye-binding methods, and can be conveniently used with 96-well microplates.

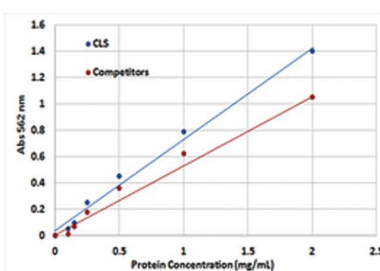


Fig. 03 EasyPrep BCA Protein Assay Kit (for Standard Assays) shows 15-20% higher sensitivity.

## Bradford Protein Assay with BSA Protein Standard

Cat. No 10478-0, 10478-1



Our Bradford Assay is highly optimized and uses a simple protocol for protein quantitation. The colorimetric assay uses Coomassie G-250, which allows for the measurement of a range of polypeptides and proteins, using bovine serum albumin as the standard.

## Micro Bicinchoninic Acid (BCA) Protein Assay and Micro Bicinchoninic Acid (BCA) Protein Assay with BSA Protein Standard

Cat. No 10479-0, 10480-0



An adaptation of our regular BCA Protein Assay, our Micro BCA Protein Assay Kit is optimized for use with dilute protein samples ranging from 2 µg/ml to 40 µg/ml. The assay is a detergent-compatible formulation based on bicinchoninic acid (BCA) for the colorimetric estimation of total proteins. The reaction product of this assay is purple in color, exhibiting a strong absorbance at 562 nm that is nearly linear with increasing protein concentrations over a broad working range of 20 µg/ml to 2,000 µg/ml. The assay is compatible with ionic and nonionic detergents, offers less protein-to-protein variation than dye-binding methods, and can be conveniently used with 96-well microplates.

# Protein Quantitation

## Bovine Serum Albumin (BSA) Standard [2mg/ml] Cat. No. 10481-0, 10481-1



Bovine Serum Albumin (BSA) is a universally known protein standard utilized in different protein assays for generating reference and standard curves. It is prepared with extreme caution to ensure high accuracy and reproducibility.

## Bovine $\gamma$ -Globulin (BGG) Protein Standard [2mg/ml] Cat. No. 10482-0, 10482-1



Bovine  $\gamma$ -Globulin (BGG) is a widely used protein standard, routinely incorporated in protein quantification and analysis of mainly purified antibodies or immunoglobulin-rich samples. It is highly compatible with many different protocols, including Bradford, BCA, and other protein assays.

Cat. No.	Product Name	Size
10477-0	Bicinchoninic Acid (BCA) Protein Assay with BSA Protein Standard	500 Assays / 2500 Micro-assays
10477-1	Bicinchoninic Acid (BCA) Protein Assay with BSA Protein Standard	1000 Assays / 5000 Micro-assays
10478-0	Bradford Protein Assay with BSA Protein Standard	500 Assays
10478-1	Bradford Protein Assay with BSA Protein Standard	1000 Assays
10479-0	Micro Bicinchoninic Acid (BCA) Protein Assay	500 Assays / 3300 Micro-assays
10480-0	Micro Bicinchoninic Acid (BCA) Protein Assay with BSA Protein Standard	500 Assays / 3300 Micro-assays
10481-0	Bovine Serum Albumin (BSA) Standard [2mg/ml]	2 x 5 ml
10481-1	Bovine Serum Albumin (BSA) Standard [2mg/ml]	4 x 5 ml
10482-0	Bovine $\gamma$ -Globulin (BGG) Protein Standard	2 x 5 ml
10482-1	Bovine $\gamma$ -Globulin (BGG) Protein Standard	4 x 5 ml

# Protein Stains, De-Stains & Buffers

## Stains

### Coomassie Brilliant Blue G-250 Protein Stain Cat. No. 10491-0, 10491-1

One of the most frequently used protein gel stains prepared with Coomassie Brilliant Blue G-250 dye. Incorporated in staining procedures for SDS-PAGE gels following electrophoresis, our product is supplied as a ready-to-use solution for fast and easy analyses.



**SALE**

# Proteins Stains, De-Stains & Buffers

## Stains

### Coomassie Brilliant Blue R-250 Protein Stain

Cat. No. 10492-0, 10492-1

This stain is prepared using Coomassie Brilliant Blue R-250 dye and used for staining proteins on SDS-PAGE gels after electrophoresis. It is supplied as a ready-to-use solution for fast and easy staining of gel proteins and differs from the more common G-250 form, as it lacks two methyl groups found in G-250.



### Coomassie Brilliant Blue R-250 Dye

Cat. No. 10354-0, 10354-1, 10354-2

Coomassie Brilliant Blue R-250 is a commonly utilized form of coomassie dye, a key component of various colorimetric protein gel stains. Coomassie R-250 is a chemical form of disulfonated triphenylmethane compound frequently employed as the basis of stains for protein detection in gel electrophoresis and quantitation with Bradford-type assay reagents. The R-250 (red-tinted) form lacks two methyl groups that are present in the G-250 (green-tinted) form. Typically, coomassie gel stains and protein assay reagents are formulated as very acidic solutions in 25% to 50% methanol, where the dye-protein binding occurs primarily through basic amino acids (arginine, lysine, and histidine). Protein binding causes the dye color to shift from reddish-brown to bright blue (absorption maximum equals 595 nm).



### Coomassie Brilliant Blue G-250 Dye

Cat. No. 10353-0, 10353-1, 10353-2, 10353-3, 10353-4, 10353-5

Coomassie Brilliant Blue G-250 is one of the most commonly available and utilized form of coomassie dye, which is a key component of various colorimetric protein gel stains.

- Colored protein-dye complexes are easily noticeable
- Sensitivity limit includes detection of protein concentrations as low as 0.5 µg/cm<sup>2</sup> in a gel matrix
- Anion of Coomassie Brilliant Blue in the stain merges via electrostatic interaction with the protonated amino groups of proteins where the resulting dye complex is reversible under the appropriate conditions
- The protein-dye complex is identifiable by a slightly broader peak than the free dye with an absorption maximum at 549 nm, thus differentiating between bound and unbound dye forms

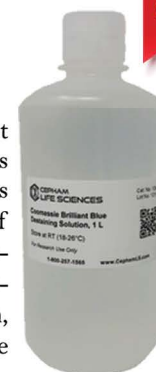


## De-Stains

### Coomassie Brilliant Blue Destaining Solution

Cat. No. 10493-0, 10493-1

Our destaining solution is a popular product for destaining gels after the staining process with Coomassie dye solution to remove excess stain, which allows for better visualization of proteins as crisp blue bands on a clear background. Composition of the destaining solution is very similar to the staining solution, just without the addition of Brilliant Blue dye.



## Buffers

### Tris-Glycine-SDS Running Buffer [10X]

Cat. No. 10501-0, 10501-1, 10501-2

Our Tris-Glycine-SDS Running Buffer [10X] contains 25 mM Tris, 192 mM glycine, and 0.1% SDS and pH ~8.5 when diluted to 1X concentration with DI water.



# Proteins Stains, De-Stains & Buffers

## Buffers

### SDS-PAGE Sample Loading Buffer [6X] Cat. No. 10502-0, 10502-1

SALE



Our SDS-PAGE Sample loading buffer contains Tris, glycerol, SDS, and bromophenol blue, supplied at 6X concentration. It is a very useful ready-to-use solution for efficient loading of protein samples onto gels.

### Tris Glycine Native Gel Running Buffer [10X] Cat. No. 10503-0, 10503-1

SALE

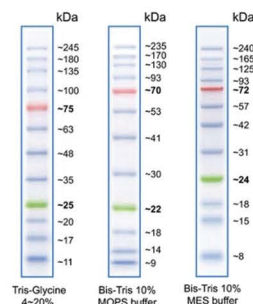


Our Tris-Glycine Native Gel Running Buffer, supplied at 10X concentration is used in processing and running protein samples for native PAGE analysis. It provides effective protein separation when used in conjunction with native tris-glycine or tris-acetate gels.

### Protein Marker – Tricolor (10-245 kDa) Cat. No. 10672-0

NEW

Our Tricolor Protein Marker is a three-color protein standard with 12 pre-stained proteins covering a wide range of molecular weights, from 10 to 245 kDa. Proteins are covalently coupled with a blue chromophore, except for two reference bands (one green and one red band at 25 kDa and 75 kDa, respectively) when separated on SDS-PAGE (Tris-glycine buffer). The Tri-color Prestained Protein Ladder is designed for monitoring proteins separated during SDS-polyacrylamide gel electrophoresis, verification of Western transfer efficiency on membranes (PVDF, nylon, or nitrocellulose) and for approximate sizing of proteins. It is a mixture of nine blue-, red-, and green-stained proteins (10 to 245 kDa) for use as size standards in protein electrophoresis (SDS-PAGE) and western blotting. The protein ladder is supplied in a ready-to-use format for direct loading onto gels; no need to heat, reduce, or add sample buffer prior to use.



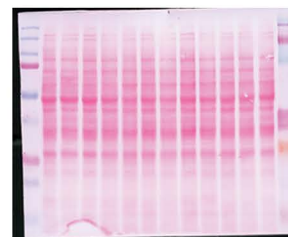
Cat. No.	Product Name	Size
10353-0	Coomassie Brilliant Blue G-250 Dye	25 g
10353-1	Coomassie Brilliant Blue G-250 Dye	50 g
10353-2	Coomassie Brilliant Blue G-250 Dye	100 g
10353-3	Coomassie Brilliant Blue G-250 Dye	250 g
10353-4	Coomassie Brilliant Blue G-250 Dye	500 g
10353-5	Coomassie Brilliant Blue G-250 Dye	1 kg
10354-0	Coomassie Brilliant Blue R-250 Dye	25 g
10354-1	Coomassie Brilliant Blue R-250 Dye	50 g
10354-2	Coomassie Brilliant Blue R-250 Dye	100 g
10491-0	Coomassie Brilliant Blue G-250 Protein Stain	1 L
10491-1	Coomassie Brilliant Blue G-250 Protein Stain	1 Gal
10492-0	Coomassie Brilliant Blue R-250 Protein Stain	1 L
10492-1	Coomassie Brilliant Blue R-250 Protein Stain	1 Gal
10493-0	Coomassie Brilliant Blue Destaining Solution	1 L
10493-1	Coomassie Brilliant Blue Destaining Solution	1 Gal
10500-0	SDS-PAGE Gel Fixing Solution	500 ml
10500-1	SDS-PAGE Gel Fixing Solution	1 L
10500-2	SDS-PAGE Gel Fixing Solution	1 Gal
10501-0	Tris-Glycine-SDS Running Buffer [10X]	500 ml
10501-1	Tris-Glycine-SDS Running Buffer [10X]	1 L
10501-2	Tris-Glycine-SDS Running Buffer [10X]	1 Gal
10502-0	SDS-PAGE Sample Loading Buffer [6X]	5 ml
10502-1	SDS-PAGE Sample Loading Buffer [6X]	25 ml
10503-0	Tris Glycine Native Gel Running Buffer	1 L
10503-1	Tris Glycine Native Gel Running Buffer	1 Gal
10672-0	Protein Marker – Tricolor (10-245 kDa)	500 µl

# Western Blotting & ELISA

## Ponceau S Solution

Cat. No. 10396-0, 10396-1

Ponceau S Solution is a commonly used staining solution for proteins on Western blots and in sequencing methods. It offers fast and reversible staining of proteins without affecting blotted proteins or sequenced polypeptides. Staining can be done in less than five minutes, with very fast de-staining.



## EasyWestern Transfer Buffer [10X & 20X]

Cat. No. 66306-0, 66306-1;

Cat No. 10612-0, 10612-1

Our EasyWestern Transfer Buffers allow effective elution of proteins from gels and their binding to Nitrocellulose as well as PVDF membranes. The buffers are supplied at 10X and 20X concentrations without the addition of Methanol, thus providing researchers the flexibility to prepare the working solutions according to their study requirements.



## BSA in PBS Blocking Buffer [10X]

Cat. No. 10615-0

This high-quality, widely used BSA-based blocking buffer is prepared in PBS and allows for a substantial increase in the assay sensitivity and reliability. Our product is supplied at 10X concentration and produces superior results with little to no background interference in Western blots, ELISA, IHC, and other such applications.



## BLOTTO Blocking Buffer (5% Milk Protein)

Cat. No. 10614-0

BLOTTO Blocking Buffer is a milk based, ready-to-use blocking buffer with 5% milk protein and an optimized concentration of antifoam agent and preservatives for long-term storage and use. It can be used in a variety of applications, including Western blots, IHC, and ELISA. It can also be used as an antibody diluent.



*IMPORTANT: It is not suitable for techniques involving avidin use.*

## BSA in TBS Blocking Buffer [10X]

Cat. No. 10616-0

This is a high-quality BSA-containing blocking buffer prepared in TBS, used in a variety of applications, such as Western blots, IHC, and ELISA. This blocking buffer produces results with minimal to no background interference in several applications. Our blocking buffer allows for an increased assay sensitivity by eliminating any interference in protein detection.



# Western Blotting & ELISA

## Casein in PBS 1% Blocking Buffer Cat. No. 10617-0

A high-quality blocking buffer, Casein in PBS [1%] is optimized for a wide range of applications involving antibody-based detections, such as Western Blots, ELISA, and others.



## Fish-Blocking Buffer in PBS Cat. No. 10619-0

Our Fish-Blocking Buffer in PBS is a non-mammalian blocking agent supplied as a ready-to-use solution useful for applications such as Western Blots and ELISAs. The buffer performs well with high signal to background ratios while utilizing fish proteins that do not interact with mammalian antibodies, allowing for its use in highly sensitive assay systems.



## Casein in TBS 1% Blocking Buffer Cat. No. 10618-0

Similar to our Casein in PBS buffer, Casein in TBS [1%] is optimized for a wide range of applications involving antibody-based detections, such as Western Blots, ELISA, and others.



## Fish-Blocking Buffer in TBS Cat. No. 10620-0

Our Fish-Blocking Buffer in TBS is a non-mammalian, Tris-based ready-to-use blocking solution useful for applications such as Western Blots and ELISAs. The buffer performs well with high signal to background ratios while utilizing fish proteins that do not display any interaction with mammalian antibodies, allowing it to be used in highly sensitive assay systems.



## TBST Wash Buffer; Tris Buffered Saline with Tween [10X] Cat. No. 10622-0

A 10X concentrate of TBS with additional 0.05% Tween 20, is widely used as wash buffer in a variety of immunoassays, such as Western Blots, ELISAs, and other such applications. Tween 20 is useful for effective washing that results in a decreased non-specific background and improved signal.



## PBST Wash Buffer; Phosphate Buffered Saline with Tween [10X] Cat. No. 10621-0, 10621-1

A 10X concentrated PBS solution with 0.05% Tween 20, it is widely used as wash buffer in a variety of immunoassays, such as Western Blots, ELISAs, etc. Tween 20 added here is useful in effective washing that results in decreased non-specific background and enhanced signal detection.





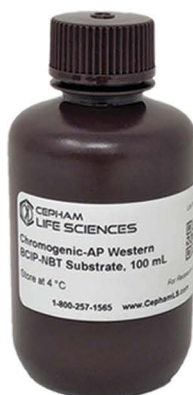
# Western Blotting & ELISA

Cat. No.	Product Name	Size
10612-0	EasyWestern Transfer Buffer [20X]	1 L
10612-1	EasyWestern Transfer Buffer [20X]	1 Gal
66306-0	EasyWestern Transfer Buffer [10X]	1 L
66306-1	EasyWestern Transfer Buffer [10X]	1 Gal
10613-0	EasyWestern Blot Stain	25 blots
10396-0	Ponceau S Solution	500 ml
10396-1	Ponceau S Solution	1 L
10614-0	BLOTTO Blocking Buffer (5% Milk Protein)	500 ml
10615-0	BSA in PBS Blocking Buffer [10X]	125 ml
10616-0	BSA in TBS Blocking Buffer [10X]	125 ml
10617-0	Casein in PBS [1%] Blocking Buffer	500 ml
10618-0	Casein in TBS [1%] Blocking Buffer	500 ml
10619-0	Fish-Blocking Buffer in PBS	500 ml
10620-0	Fish-Blocking Buffer in TBS	500 ml
10621-0	PBST Wash Buffer; Phosphate Buffered Saline with Tween [10X]	250 ml
10621-1	PBST Wash Buffer; Phosphate Buffered Saline with Tween [10X]	500 ml
10622-0	TBST Wash Buffer; Tris Buffered Saline with Tween [10X]	250 ml

## Chromogenic-AP Western Blot Substrate

Cat. No. 10624-0

Our Chromogenic-AP Western Blot Substrate, BCIP-NBT, is optimized for protein identification using alkaline phosphatase conjugation. It is a highly sensitive substrate proven to be very effective for the detection of proteins labeled with alkaline phosphatase enzymes in various blotting protocols.



## Chemiluminescent-AP Western Blot Substrate

Cat. No. 10629-0

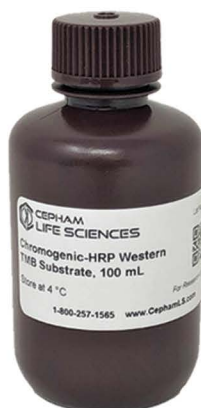
This highly sensitive, single-component, enhanced chemiluminescent Western Blot Substrate is used for the quantitative detection of membrane-bound proteins labeled with alkaline phosphatase conjugated antibodies.



## Chromogenic-HRP Western Blot Substrate

Cat. No. 10626-0

We supply TMB, a horseradish peroxidase substrate, which produces a stable, insoluble, colored precipitate at the reaction site with insignificant background for protein identification using horseradish peroxidase conjugation. This substrate is ideal for many immunoblotting procedures, and it can significantly increase the detection limits of assays on blotting membranes.



## Chemiluminescent-HRP Western Blot Substrate

Cat. No. 10630-0

This is a highly sensitive enhanced chemiluminescent substrate with two components: luminol and peroxide. It is quantitatively utilized for protein detection in Western blots with horseradish peroxidase enzyme labeled antibodies.



# Western Blotting & ELISA

## Nitrocellulose Membrane, Pore Size 0.22 µm Cat. No. 10631-0



A widely used membrane for different blotting applications that has a high affinity for protein binding, supplied pre-cut in 8.5 x 7.5cm or 10 x 10 cm size, with blotting paper. It also demonstrates a high level of compatibility with different detection methods, such as chemiluminescent and chromogenic, etc.

## PVDF Membrane, pore size 0.22 µm Cat. No. 10632-0



PVDF is a hydrophobic membrane used for a wide variety of blot, sequencing, and protein analysis applications. It is supplied pre-cut in 8.5 x 7.5cm or 10 x 10cm size, with blotting paper. It demonstrates a high level of compatibility with different detection methods, such as chemiluminescent, chromogenic, and others.

## EasyWestern Stripping Buffer (Ready-to-use buffer) Cat. No. 66307-0, 66307-1, 66307-2, 66307-3

This ready-to-use buffer is employed in stripping the antibodies bound to proteins without affecting the transferred proteins on the membrane during Western blotting protocol. It allows for reuse of the blot and saves protein samples, time, and resources involved in repeating the entire procedure.



Cat. No.	Product Name	Size
10624-0	Chromogenic-AP Western Blot Substrate	For ~ 4,000 cm <sup>2</sup> Membrane
10626-0	Chromogenic-HRP Western Blot Substrate	For ~ 4,000 cm <sup>2</sup> Membrane
10629-0	Chemiluminescent-AP Western Blot Substrate	100 ml
10630-0	Chemiluminescent-HRP Western Blot Substrate	100 ml
10631-0	Nitrocellulose Membrane Precut	10cm x 10cm, 8.5cm x 7.5cm
10632-0	PVDF Membrane Precut	10 cm x 10 cm, 8.5 cm x 7.5 cm
66307-0	EasyWestern Stripping Buffer	250 mL
66307-1	EasyWestern Stripping Buffer	500 mL
66307-2	EasyWestern Stripping Buffer	1 L
66307-3	EasyWestern Stripping Buffer	1 G

# Western Blotting & ELISA

## Chemiluminescent ELISA - AP Kit Cat. No. 10634-0



A highly optimized protocol that allows for simple, yet precise and reproducible results. Our Chemiluminescent ELISA - AP Kit includes a sensitive, high-quality, enhanced chemiluminescence substrate for alkaline phosphatase conjugated antibodies targeting membrane-bound proteins of interest with a detection limit of as low as 10 ng of protein.

## Colorimetric ELISA - HRP Substrate Cat. No. 10636-0



This is a very sensitive substrate for detecting horseradish peroxidase (HRP) enzyme-labeled antibodies, and it produces a low background-to-noise ratio with clear results in ELISA experiments.

## Chemiluminescent ELISA - HRP Kit Cat. No. 10635-0



A highly optimized protocol allows for simple, yet precise and reproducible results. Our Chemiluminescent ELISA - HRP Kit includes a sensitive, high-quality, enhanced chemiluminescence substrate for horseradish peroxidase conjugated antibodies targeting membrane-bound protein of interest with a detection limit as low of as 10 ng of protein.

## Colorimetric ELISA - AP Kit Cat. No. 10637-0



Our Colorimetric ELISA - AP kit is supplied with an alkaline phosphatase substrate, a blocking buffer and TBST Wash Buffer, offering an incredibly strong signal and low background interference. The substrate is highly sensitive, capable of detecting  $\leq 0.5$  pg of alkaline phosphatase labeled antibodies.

## Colorimetric ELISA - AP Substrate Cat. No. 10638-0

The Colorimetric ELISA AP substrate is a highly sensitive substrate used in Western Blot for protein detection with alkaline phosphatase labeled antibodies.



# Western Blotting & ELISA

## Colorimetric ELISA - HRP Kit

Cat. No. 10639-0

Developed with a high level of sensitivity and optimization, this ELISA kit offers horseradish peroxidase (HRP) substrate that can detect the pg level of proteins. The kit is supplied with the HRP substrate, a blocking buffer, and TBST Wash Buffer, producing strong signals with little to no background interference.



Cat. No.	Product Name	Size
10634-0	Chemiluminescent ELISA - AP Kit	500 Assays
10635-0	Chemiluminescent ELISA - HRP Kit	1000 Assays
10636-0	Colorimetric ELISA - HRP Substrate	1000 Assays
10637-0	Colorimetric ELISA - AP Kit	1000 Assays
10638-0	Colorimetric ELISA - AP Substrate	1000 Assays
10639-0	Colorimetric ELISA - HRP Kit	1000 Assays

# Immunohistochemistry (IHC Products)

NEW

## TBST [10X]; Tris buffered saline with Tween-20 (100mM Tris-HCl, 1.5M NaCl, 0.5% Tween-20, pH 7.5)

Cat No. 10420-0

A 10X Concentrated solution of Tris Buffered Saline with Tween 20 with a concentration of 100mM Tris-HCl, 150mM NaCl, and 0.5% Tween 20 at pH7.5. TBST is commonly used as a wash solution for Western blot membranes and microtiter plate wells in ELISA assays. The Tris Buffered Saline with Tween 20 is an optimal formulation of pH stabilizers, salts and detergents designed to effectively remove excess material from membranes and microtiter plate wells without disrupting the antigen/antibody binding reaction. By maintaining the proper buffering environment, unbound components can be washed away without suppressing antigen-antibody binding interactions, thereby reducing nonspecific background and increasing the specific signal.



## 0.3% Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>)

Cat. No.: 66308-0, 66308-1

The Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), commonly used as a bleaching agent, is a clear, colorless liquid that readily mixes with water. It has a slightly sharp, pungent, irritating odor and a bitter taste. In its stabilized form, the hydrogen peroxide appears as a crystalline solid at low temperatures. Its vapors are irritating to the eyes and mucous membrane. The chemical, especially at higher concentrations, can violently decompose upon contact with the most common metals and their compounds.



# Immunohistochemistry (IHC Products)

NEW

## 3% Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>)

Cat. No: 66309-0, 66309-1, 66309-2

Hydrogen peroxide (H<sub>2</sub>O<sub>2</sub>), commonly used as a bleaching agent, is a clear, colorless liquid that readily mixes with water. It has a slightly sharp, pungent, irritating odor and a bitter taste. In its stabilized form, hydrogen peroxide appears as a crystalline solid at low temperatures. Its vapors are irritating to the eyes and mucous membranes. The chemical, especially at higher concentrations, can violently decompose upon contact with the most common metals and their compounds.



## 4% Paraformaldehyde (PFA)

Cat. No: 66311-0, 66311-1

Paraformaldehyde (PFA) is a linear polymer, cross-linking fixative that changes to formaldehyde upon heating and by adding a small amount of sodium hydroxide. Paraformaldehyde is the polymerization product of formaldehyde; degree of polymerization of 8–100 units. It must be depolymerized to formaldehyde in solution prior to use since it is not the fixative itself. The formaldehyde fixing procedure for cell samples usually involves using a 4% formaldehyde solution in phosphate buffered saline (PBS) on ice for a few minutes. This vital step maintains the cell morphology and therefore ensures that sample cell structures stay intact, and antigens are immobilized, while still permitting antibody-target antigen access.



## 1% 3,3'-Diaminobenzidine (DAB)

Cat. No: 66310-0, 66310-1, 66310-2

DAB (3,3-Diaminobenzidine) is a derivative of benzene, frequently utilized in immunohistochemical (IHC) staining as a chromogen for detecting nucleic acids and proteins. It is also used for techniques such as *in situ* hybridization (ISH), fluorescence, *in situ* hybridization (FISH), and occasionally in dot blots, immunofluorescence and Western blotting procedures.



## 10% Neutral Buffered Formalin

Cat. No: 66312-0, 66312-1, 66312-2

Formalin is composed of formaldehyde (37 to 40% (w/v)), where 10% neutral-buffered formalin (NBF) is basically a 4% (v/v) formaldehyde solution diluted using phosphate buffer at neutral pH. 10% NBF is a commonly used general purpose histological fixative, widely employed in preparing samples for light microscopy. It is ideally suited for short-term sample fixation but equally efficient for long-term tissue storage and is compatible with targets such as low molecular weight proteins, peptides and enzymes. Our 10% NBF solution is specifically developed for use in multiple histological and cytological applications. The product has neutral pH and is supplied free of contaminants, thus minimizing the inconvenience caused from non-specific background staining and artifacts. 10% NBF forms crosslinks between the aldehydes and the proteins of the study samples, that retain the original structure of the cellular components, and preps the samples for successive processing and staining procedures.



# Immunohistochemistry (IHC Products)

NEW

## Alcian Blue Stain Solution

Cat. No.: 66313-0, 66313-1, 66313-2

Alcian Blue, a water-soluble polyvalent basic dye, is often employed in staining procedures for histological analysis of acidic mucosubstance (glycosaminoglycans, mucopolysaccharides sialylated glyocalyx, etc.) and mucins, with applications in both light and electron microscopy. The structure comprises of a central copper-containing phthalocyanine ring connected with four moderately basic isothiuronium groups by thioether linkage. Alcian blue, a heteroglycan stain, is commonly utilized for the histological visualization of sulfated and carboxylated acid mucopolysaccharides and sulfated and carboxylated sialomucins; it specifically targets and stains sulfated or carboxylated acid mucopolysaccharides and sulfated or carboxylated sialomucin/glycoproteins by forming salt linkages with mucopolysaccharides and imparting a blue color. Typically, Alcian Blue is used for staining acidic mucins (sialomucin, sulfomucin) whereas PAS reaction is the preferred method for assessing neutral mucins and glycogen.



## DAB Substrate Kit (Brown)

Cat. No: 66316-0



DAB (3,3'-Diaminobenzidine) is a commonly used chromogen used in immunohistochemical and immunoblot applications. In the presence of HRP / peroxidase enzyme, DAB reacts to generate a brown-colored precipitate bearing optimum contrast with pigmented tissues and counterstains at locations where peroxidase-conjugated antibodies are bound to samples, that is insoluble in alcohol and xylene.

## DAB Substrate Kit (Blue)

Cat. No: 66315-0

Our DAB kit is supplied with refrigerator-stable 20X concentrates of 1% DAB substrate, 0.3% hydrogen peroxide solution, and 0.01M phosphate buffer. It also includes a 1% nickel ammonium sulfate solution that provides an option to the researcher for adjusting the reaction product color from brown to more intense gray/black, facilitating better visualization with an appropriate choice of counterstain. The resulting precipitate is insoluble in major organic solvents involved in the staining process, thus making it an ideal substrate for immunostaining and other blot-based protein applications including other counterstains and mounting media (aqueous or non-aqueous mounts).



## Citrate Buffer, pH 6.0

Cat. No.: 66314-0, 66314-1

Fixatives such as formalin or other such aldehyde-based agents readily activate intrinsic protein crosslinking responsible for masking the cellular, membrane and nuclear antigenic sites in tissue samples that lead to a weak or suppressed signal/stain during immunohistochemical analysis. Citrate buffers are commonly incorporated in antigen detection by breaking the protein crosslinks between antigens and substances in the fixation medium at high temperature treatments, and thereby revealing the antigens/epitopes in formalin-fixed and paraffin embedded tissue sections, in turn enhancing the staining intensity of antibodies. These buffers are also routinely used for RNA isolation, primarily due to their ability to prevent base hydrolysis.



## Eosin Y Stain Solution

Cat. No: 66317-0, 66317-1

Eosin is a xanthene dye, an organobromine compound and a monocarboxylic acid used for the differential staining of connective tissue and cytoplasm. In histopathology, it is applied as a counterstain after hematoxylin and before methylene blue. It is also used as a background stain, thereby giving contrast to the nuclear stains.



## Gill's and Harris' Hematoxylin Solutions

Variations in dye contents form the basis for classifying hematoxylin stains into progressive or regressive categories. While progressive stains like Mayer's hematoxylin with a lower dye content result in selective nuclear chromatin staining, the regressive stains like Harris' hematoxylin are responsible for staining both nuclear and cytosolic components. Hematoxylin gets oxidized to hematein and combines with a mordant (mostly aluminum or iron salt) to generate the characteristic blue color visualized with light microscopy. Gill's Hematoxylin Stain is a progressive nuclear stain solution for cytology and histology applications available in three different strengths: Gill I (single strength), Gill II (double strength) and Gill III (triple strength).

### Gill's Hematoxylin Stain Solution 1 (single strength)

Cat. No: 66318-0, 66318-1



Gill I (single strength), a progressive stain, is ideal for cytology-based applications not requiring highly intense staining. In comparison to other classes of hematoxylin solutions, Gill's hematoxylin is the only solution to successfully stain goblet cells in test samples for better visualization.

### Gill's Hematoxylin Stain Solution 3 (triple strength)

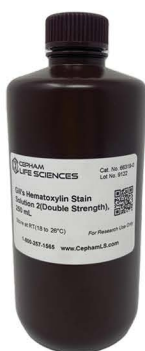
Cat. No: 66320-0, 66320-1



Gill III (triple strength) formulation is the preferred option for achieving intense nuclear staining with rapid run times in tissue sections. Gill's hematoxylin III follows an optimized progressive staining pattern, thus decreasing the risk of overstaining the samples. In comparison to other classes of hematoxylin solutions, Gill's hematoxylin is the only solution to successfully stain goblet cells in test samples for better visualization.

### Gill's Hematoxylin Stain Solution 2 (double strength)

Cat. No: 66319-0, 66319-1



Gill II (double strength) formulation is well suited for both cytology and for histology applications such as IHC counterstains and H&E staining where intense staining is required. In comparison to other classes of hematoxylin solutions, Gill's hematoxylin is the only solution to successfully stain goblet cells in test samples for better visualization.

### Harris' Hematoxylin Stain Solution

Cat. No: 66321-0, 66321-1



Harris' Hematoxylin is a basophilic dye that produces a deep, bluish-purple stain, commonly used in both progressive and regressive staining-based cytologic and histologic assays. The mechanism involves metal ion chelation with targeted binding to acidic compounds in the cells, mainly DNA and RNA, thereby resulting in brightly stained nuclei. This histological grade reagent is suitable for visualization of nuclei in various sample formats, such as cells, formalin-fixed, paraffin-embedded tissue sections, and cryosections. Hematoxylin stain is often used in conjunction with Eosin dye for high contrast between nuclear and cytoplasmic staining in histological evaluations using light microscopy.

## Mayer's Hematoxylin Stain Solution

Cat. No: 66322-0, 66322-1, 66322-2

Mayer's hematoxylin, an alum hematoxylin, is a commonly employed nuclear counterstain hematoxylin formulation for both progressive and regressive H&E, immunohistochemistry, and cytology staining procedures. The working principle of this water-based hematoxylin counterstain involves nuclear staining followed by a differentiator assisted bluing. The results are crisp and clear nuclear staining with little no background noise. The progressive staining nature of Mayer's hematoxylin stain decreases the possibility of overstaining. The product eliminates the requirement for an acid alcohol differentiation step.

The formulation is developed as an alcohol- and mercury-free solution, for its convenient incorporation as an effective IHC counterstain when used in presence of the AEC substrate. When incorporated in routine anatomic pathology and research applications, such as hematoxylin and eosin (H&E) staining protocol, it is responsible for staining the nuclei (blue) while eosin stains the cytosolic fractions (pink or red).



## Nuclear Fast Red Stain Solution

Cat. No: 66324-0, 66324-1, 66324-2

Nuclear Fast Red Staining Solution is a common nuclear counterstain formulation composed of an anionic anthraquinone dye, used in conjunction with a mordant, usually an aluminum salt. Also called as Kernechtrot or Calcium Red, Nuclear Fast Red Stain is a highly versatile reagent that selectively stains nuclear chromatin red, while the nonspecific signal is detected in pink tones. This staining solution offers a faster, optimized, intense and simpler (multi-labeling nuclear counterstain) alternative in comparison to hematoxylin, in cases where hematoxylin would normally conceal the substrate signal, resulting in poor resolution.



## Methyl Green Stain Solution

Cat. No: 66323-0, 66323-1

Methyl Green is a basic dicationic dye containing triphenylmethane. It forms an alkaline solution that is readily converted to a colorless carbinol base at higher pH values. Methyl green staining formulation is commonly employed in cell and tissue staining/imaging procedures, where it stains the nuclei light green. Methyl green is primarily incorporated in histochemistry as a biological DNA/RNA stain. At low concentrations, it selectively targets and binds the AT-rich regions of native DNA, while at high concentrations, it is found at all available DNA sites.

This product is highly recommended for counterstaining of immunohistochemically stained tissues to enhance nuclear staining without affecting the non-specific background signal. Methyl green binds preferentially to the DNA regions with a higher degree of polymerization than RNA. It can be used in conjunction with immunofluorescent and immunohistochemical staining procedures and serves as a marker dye for DNA in acidic and neutral media. Methyl green staining solution serves as a desired alternative in multiple labeling of test samples where hematoxylin obscures the substrate colors.



## Scott's Water

Cat. No: 66325-0, 66325-1

Scott's Water is a high-quality bluing reagent developed specifically for histology and cytology-based applications. It functions by gradually bluing the hematoxylin stain and minimizes loss of tissue sections and cells from the surface of glass slides. Scott's Tap Water is formulated as an efficient yet gentle bluing reagent for staining, thus accounting for rapid and specific staining of the nuclear components: chromatin and nuclear membranes. In comparison to the other commercially available bluing reagents, Scott's water displays efficiency in decreasing the loss of adherent sample sections from glass slide surface.





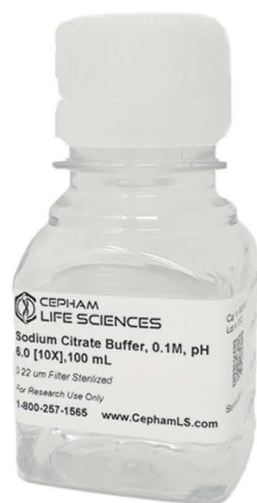
# Immunohistochemistry (IHC Products)

NEW

## Sodium Citrate Buffer, pH 6.0

Cat. No: 66326-0, 66326-1, 66326-2

Fixatives such as formalin or other such aldehyde-based agents readily activate intrinsic protein crosslinking responsible for masking the cellular, membrane and nuclear antigenic sites in tissue samples that lead to a weak or suppressed signal/stain during immunohistochemical analysis. Citrate buffers are commonly incorporated in antigen detection by breaking the protein crosslinks between antigens and substances in the fixation medium and thereby revealing the antigens/epitopes in formalin-fixed and paraffin-embedded tissue sections, in turn enhancing the staining intensity of antibodies. These buffers are also routinely used for RNA isolation, primarily due to their ability to prevent base hydrolysis. Sodium Citrate buffer is utilized as a heat-induced antigen retriever for formalin-fixed paraffin-embedded (FFPE) tissue sections prior to incubation with antibodies or DNA fluorescent *in situ* hybridization. The use of Sodium Citrate buffer, pH 6.0 on such tissue sections greatly enhances the accessibility of antibodies to tissue antigens, thus improving the resulting detection signal.



Cat. No.	Product Name	Size
10420-0	TBST [10X]; Tris buffered saline with Tween-20 (100mM Tris.HCl, 1.5M NaCl, 0.5% Tween-20, pH 7.5)	1L
10420-1	TBST [10X]; Tris buffered saline with Tween-20 (100mM Tris.HCl, 1.5M NaCl, 0.5% Tween-20, pH 7.5)	1G
66308-0	0.3% Hydrogen peroxide (H2O2)	100 ml
66308-1	0.3% Hydrogen peroxide (H2O2)	250 ml
66309-0	3% Hydrogen peroxide (H2O2)	50 ml
66309-1	3% Hydrogen peroxide (H2O2)	100 ml
66309-2	3% Hydrogen peroxide (H2O2)	500 ml
66310-0	1% 3,3'-Diaminobenzidine (DAB)	10 ml
66310-1	1% 3,3'-Diaminobenzidine (DAB)	50 ml
66310-2	1% 3,3'-Diaminobenzidine (DAB)	100 ml
66311-0	4% Paraformaldehyde (PFA)	100 ml
66311-1	4% Paraformaldehyde (PFA)	500 ml
66312-0	10% Neutral Buffered Formalin	1 L
66312-1	10% Neutral Buffered Formalin	1 G
66312-2	10% Neutral Buffered Formalin	2.5 G
66313-0	Alcian Blue Stain Solution	100 ml
66313-1	Alcian Blue Stain Solution	250 ml
66313-2	Alcian Blue Stain Solution	500 ml
66314-0	Citrate Buffer, pH 6.0	250 ml
66314-1	Citrate Buffer, pH 6.0	500 ml
66315-0	DAB Kit (Blue)	Kit
66316-0	DAB Kit (Brown)	Kit
66317-0	Eosin Y Stain Solution	100 ml
66317-1	Eosin Y Stain Solution	500 ml
66318-0	Gill's Hematoxylin Stain Solution 1 (single strength)	250 ml
66318-1	Gill's Hematoxylin Stain Solution 1 (single strength)	500 ml
66319-0	Gill's Hematoxylin Stain Solution 2 (double strength)	250 ml
66319-1	Gill's Hematoxylin Stain Solution 2 (double strength)	500 ml
66320-0	Gill's Hematoxylin Stain Solution 3 (triple strength)	250 ml
66320-1	Gill's Hematoxylin Stain Solution 3 (triple strength)	500 ml
66321-0	Harris' Hematoxylin Stain Solution	500 ml
66321-1	Harris' Hematoxylin Stain Solution	1 L
66322-0	Mayer's Hematoxylin Stain Solution	100 ml
66322-1	Mayer's Hematoxylin Stain Solution	250 ml
66322-2	Mayer's Hematoxylin Stain Solution	500 ml
66323-0	Methyl Green Stain Solution	250 ml
66323-1	Methyl Green Stain Solution	500 ml
66324-0	Nuclear Fast Red Stain Solution	125 ml
66324-1	Nuclear Fast Red Stain Solution	250 ml
66324-2	Nuclear Fast Red Stain Solution	500 ml
66325-0	Scott's Water	500 ml
66325-1	Scott's Water	1 L
66326-0	Sodium Citrate Buffer, pH 6.0	100 ml
66326-1	Sodium Citrate Buffer, pH 6.0	250ml
66326-2	Sodium Citrate Buffer, pH 6.0	500ml

# DNA / RNA Extraction Kits, PCR Enzymes & Reagents

We offer a wide selection of molecular biology research products, that include purification of genomic DNA, plasmid DNA, RNA, PCR reaction buffers, Taq polymerase, individual deoxynucleotides (dNTPs), deoxynucleotide mix (dNTP Mix), and ready to use PCR Master Mix. Our Genomic DNA Extraction Kit purifies high quality genomic DNA from different sources and species for a wide range of applications. Our kits do not use chloroform or phenol extraction, and produce high quality DNA, free of protein and other contaminants. Our RNA extraction and purification kit isolate the total RNA from animal and plant tissues, cultured cells, blood, and bacteria. The extracted RNA is free from DNA, proteins, and nuclease contamination and is suitable for variety of downstream applications.

## Genomic DNA Extraction Kit - Universal Cat. No. 10640-0, 10640-1



Our Genomic DNA Extraction Kit - Universal is a column-based kit for extracting genomic DNA from cells, animal tissues, blood, rodent tail, hair, and gram (-) bacteria. The buffers supplied with the kit provide a higher DNA yield while maintaining its purity content.

## Genomic DNA Extraction Kit - Blood Cat. No. 10641-0



This kit is designed for extracting genomic DNA from whole blood, bone marrow, cell, tissue and bacterial samples. There is no limit on the sample starting amount, and the recommended buffer volume corresponding to the sample starting amount is offered to optimize conditions to extract the highest purity DNA.

## Genomic DNA Extraction Kit - Cell/Tissue Cat. No. 10642-0



Designed for extracting genomic DNA from cells, tissues, and bacteria samples, this kit provides optimum buffering conditions to extract highest purity genomic DNA. Extraction involves simple steps, consisting of cell lysis, removal of proteins, DNA binding to column matrix, and elution. Lysis Buffer is very efficient for lysing the nuclei from various cell/tissue samples, and Precipitation Buffer allows protein precipitate to release genomic DNA that is suitable for PCR, Southern Blot, and other downstream applications.

## Genomic DNA Extraction Kit - Plant Tissue Cat. No. 10643-0



This kit is used for extracting genomic DNA from various plant derived samples: leaves, roots, fruits, and seeds. PPT Buffer and Enhancer Solution are applied to prevent secondary product from tainting the results for samples such as Gramineae seed.

# DNA / RNA Extraction Kits, PCR Enzymes & Reagents

## Genomic DNA Extraction Kit - Bacteria Cat. No. 10644-0



This kit is designed for efficient extraction of genomic DNA from Gram (-) and Gram (+) bacteria. Usually, alcohol precipitation is used for bacterial genomic DNA extraction, which is a complicated method with low purity. Our Genomic DNA Extraction Kit for Bacteria has been optimized to extract high purity genomic DNA from diverse bacterial samples.

## Genomic DNA Extraction Kit - Clinical Cat. No. 10660-0



Genomic DNA Extraction Kit - Clinical is used for extracting genomic DNA from clinical samples such as blood / blood stains, tissue / fixed tissue, cultures, swab templates, or tissue fluid, etc. The Binding Carrier allows for retention of the DNA, ensuring efficient purification.

## Genomic DNA Extraction Kit - Gram (+) Bacteria / Yeast / Fungi Cat. No. 10645-0



This kit is specially designed for extracting genomic DNA from Gram (+) bacteria, yeast, and fungi. Optimized chaotropic salt and detergents are used to extract genomic DNA efficiently by pre-lysis and lysis buffer systems.

## Genomic DNA Extraction Kit - Soil Cat. No. 10661-0



This kit is used for genomic DNA extraction from soil samples. It uses glass beads for economical and efficient lysis instead of relying on chemical lysis.

## Genomic DNA Extraction Kit - Stool Cat. No. 10662-0



Our Genomic DNA Extraction Kit – Stool, is designed to extract genomic DNA from fresh or frozen stool samples from humans, dogs, rats, cats, or cows.

## Genomic DNA from FFPE Tissue Cat. No. 10663-0



This kit is designed to extract genomic DNA from formalin-fixed, paraffin-embedded tissues. The method is optimized and provides lysis and binding buffers to extract highest purity DNA with greater yield from various tissue types.

# DNA / RNA Extraction Kits, PCR Enzymes & Reagents

## Genomic DNA Extraction Kit - Urine Cat. No. 10664-0



This kit is designed to extract bacterial DNA from urine. The method is optimized to extract genomic DNA from Gram (-) bacteria, Gram (+) bacteria, and yeast, without Lysozyme treatment. This product is suitable for cancer screening, DNA methylation studies, sexually transmitted diseases and infectious disease research.

## Probe DNA Purification Kit Cat. No. 10666-0



Our Probe DNA Purification kit is a Sephadex resin-based column, which is designed for un-incorporated nucleotide removal after DNA labeling during polymerization or end-labeling, random primer labeling, and nick translation. The Sephadex pillar is built up by the spin down using charged Sephadex resin. Our kit effectively removes dNTPs, free isotopes, and enzymes after the probe DNA labeling step by isotope or chemical method.

## Plasmid DNA Extraction Kit Cat. No. 10665-0, 10665-1



This kit extracts the plasmid DNA from recombinant bacterial cultures using our proprietary DNA matrix in a spin column format, which involves harvesting the bacteria, alkaline lysis, and neutralization of the lysate before passing through a column. Upon passing the neutralized lysate through a column, the plasmid DNA is retained in the matrix due to adsorption, which can be eluted either with TE Buffer or sterile deionized water.

## Total RNA Extraction Solution- Cell / Tissue (Trazol) Cat. No. 10656-0

Our total RNA Extraction Solution efficiently extracts RNA from tissue and cell samples by dissolving the sample, denaturing nucleic acids and proteins, and inhibiting the activity of RNase from cells. With this method and the appropriate sample size, pure RNA can be extracted with almost no contamination from protein and genomic DNA.



## Total RNA Extraction Kit - Plant Cat. No. 10659-0

Total RNA Extraction Kit (Mini-prep) is designed to extract total RNA of mini scale from various plant tissues. This product works using our proprietary solutions without the use of extra alcohol for RNA precipitation. The kit offers a simple method utilizing silica membrane with pre-lysis buffer and is suitable for RT-PCR, Northern Blotting, and cDNA synthesis.



# DNA / RNA Extraction Kits, PCR Enzymes & Reagents

## Total RNA Extraction Kit - Cell / Tissue Cat. No. 10658-0



Our Total RNA Extraction Kit is designed to extract total RNA from cell and tissue samples using a simple method that eliminates the possibility of contamination from genomic DNA. This kit excludes the need of phenol or alcohol for RNA extraction. Offering a simple protocol, this product facilitates efficient RNA extraction from large sample sizes in a shorter duration. It has advantages over other available kits requiring phenol and alcohol-based methods for RNA extractions, and the entire extraction process of total RNA is completed within 30 minutes.

## CTAB Extraction Buffer Cat No. 10460-0, 10460-1, 10460-2



Cetyltrimethylammonium bromide (CTAB) is a cationic surfactant commonly used in the preparation and purification of genomic DNA from different samples, particularly plants. Extracting DNA from plant tissues can be very challenging, primarily due to the presence of a rigid cell wall surrounding the plant cells. Polysaccharides and polyphenols in a DNA preparation can inhibit the use of polymerase chain reaction (PCR) and other downstream applications.

## DNA & RNA Extraction Kits

Cat. No.	Product Name	Size
10640-0	Genomic DNA Extraction Kit - Universal	50 preps
10640-1	Genomic DNA Extraction Kit - Universal	200 preps
10641-0	Genomic DNA Extraction Kit - Blood	200 preps
10642-0	Genomic DNA Extraction Kit - Cell Tissue	300 preps
10643-0	Genomic DNA Kit - Plant Tissue	50 preps
10644-0	Genomic DNA Extraction Kit - Bacteria	50 preps
10645-0	Genomic DNA Extraction Kit - Gram(+) Bacteria / Yeast / Fungi	50 preps
10660-0	Genomic DNA Extraction Kit - Clinical	50 preps
10661-0	Genomic DNA Extraction Kit - Soil	50 preps
10662-0	Genomic DNA Extraction Kit - Stool	50 preps
10663-0	Genomic DNA from FFPE Tissue	50 preps
10664-0	Genomic DNA Extraction Kit - Urine	50 preps
10460-0	CTAB Extraction Buffer	125 ml
10460-1	CTAB Extraction Buffer	250 ml
10460-2	CTAB Extraction Buffer	500 ml
10665-0	Plasmid DNA Purification Kit	50 preps
10665-1	Plasmid DNA Purification Kit	200 preps
10666-0	Probe DNA Purification Kit	100 preps
10656-0	Total RNA Extraction Solution-Cell/Tissue (Trazol)	100 ml
10658-0	Total RNA Extraction Kit- Cell/Tissue	50 preps
10659-0	Total RNA Extraction Kit- Plant	50 Preps

# DNA / RNA Extraction Kits, PCR Enzymes & Reagents

## Taq DNA polymerase with Buffers Cat. No. 10652-0, 10652-1



Our Taq DNA Polymerase purified from *E. coli* and expressing a cloned *Thermus aquaticus* DNA polymerase gene, has a 5' → 3' DNA polymerase and a 5' → 3' exonuclease activity but lacks a 3' → 5' exonuclease activity. It is a heat-stable enzyme that synthesizes DNA at high temperatures from single-stranded templates in the presence of a primer. Applications include PCR, DNA labeling & sequencing, and other such methods requiring high grade DNA polymerase.

- Highly pure Taq DNA Polymerase with high specificity and accuracy
- Contents: Taq DNA polymerase 500 Units X 1 tube, 10X PCR buffer (20mMMg<sup>2+</sup>), 10X Mg<sup>2+</sup> free buffer, 10mM DNTPs, 25 Mg<sup>2+</sup>

## Taq DNA Polymerase with Buffers & dNTPs (25 mM each) Cat. No. 10653-0, 10653-1



Our Taq DNA Polymerase purified from *E. coli* expressing a cloned *Thermus aquaticus* DNA polymerase gene, has a 5' → 3' DNA polymerase and a 5' → 3' exonuclease activity but lacks a 3' → 5' exonuclease activity. It is a heat-stable enzyme that synthesizes DNA at high temperatures from single-stranded templates in the presence of a primer. Applications include PCR, DNA labeling & sequencing, and other such methods requiring high grade DNA polymerase.

- Our Taq DNA polymerase with Buffers and dNTPs (PCR Mastermix) is a ready-to-use reaction mixture, which only requires the researcher to add molecular grade water, DNA template, and 5' and 3' primers.

## Pfu DNA Polymerase with Buffers

### Cat. No. 10654-0

Pfu DNA polymerase from the hyperthermophilic archaea derived from *Pyrococcus furiosus*, displays superior thermostability and proofreading properties. It possesses 3' to 5' exonuclease proofreading activity for rectifying nucleotide-misincorporation errors and generates blunt-ended PCR products, ideal for cloning into blunt-ended vectors.

- Pfu DNA Polymerase is a proofreading enzyme of 3' to 5' exonuclease activity and has high fidelity, high accuracy, and proof-reading activity for the amplification of long DNA templates.



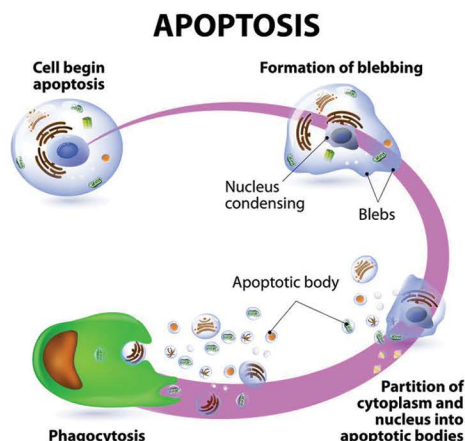
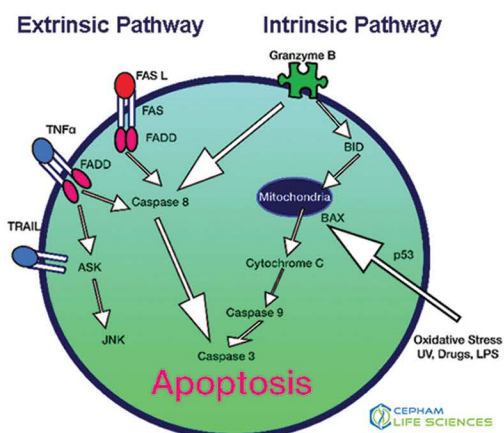
## PCR Enzymes and Reagents

Cat. No.	Product Name	Size
10652-0	Taq DNA Polymerase with Buffers	500 U
10652-1	Taq DNA Polymerase with Buffers	1000 U
10653-0	Taq DNA Polymerase with Buffers & dNTPs (25 mM each)	500 U
10653-1	Taq DNA Polymerase with Buffers & dNTPs (25 mM each)	1000 U
10654-0	Pfu DNA Polymerase with Buffers	250 U
10655-0	Pfu DNA Polymerase with Buffers & dNTPs (25 mM each)	250 U
10646-0	dATP – 100 mM	0.5 ml
10647-0	dCTP – 100 mM	0.5 ml
10648-0	dGTP – 100 mM	0.5 ml
10649-0	dTTP – 100 mM	0.5 ml
10650-0	dNTP Set – 100 mM	0.5 ml
10651-0	dNTP Mix – 10 mM	0.5 ml
10608-0	Water – DEPC Treated	250 ml
10608-1	Water – DEPC Treated	500 ml
10608-2	Water – DEPC Treated	1 L
10611-0	Water, Molecular Biology Grade	500 ml
10611-1	Water, Molecular Biology Grade	4 x 500 ml
10611-2	Water, Molecular Biology Grade	1 L
10611-3	Water, Molecular Biology Grade	1 Gal

# Apoptosis

Apoptosis is a process of programmed cell death, which takes place in multicellular organisms, generally characterized by the distinct morphological features and biochemical processes. It is considered a vital component of various processes including normal cell turnover, proper development and functioning of the immune system and chemical-induced cell death.

Cepham Life Sciences offers caspase related apoptosis products that include apoptosis inducers, Caspase activity and inhibition assays, and high-quality human recombinant active caspases to study enzyme regulation and kinetics, screen caspase inhibitors, determine target substrates, etc.



## Caspase Assay Kits - Colorimetric



Cat. No.	Product Name	Size
10068-0	Caspase-1 Assay Kit, Colorimetric with Ac-YVAD-pNA Substrate	50 Assays
10068-1	Caspase-1 Assay Kit, Colorimetric with Ac-YVAD-pNA Substrate	100 Assays
10070-0	Caspase-2 Assay Kit, Colorimetric with Ac-VDVAD-pNA Substrate	50 Assays
10070-1	Caspase-2 Assay Kit, Colorimetric with Ac-VDVAD-pNA Substrate	100 Assays
10072-0	Caspase-3,7 Assay Kit, Colorimetric with Ac-DEVD-pNA Substrate	50 Assays
10072-1	Caspase-3,7 Assay Kit, Colorimetric with Ac-DEVD-pNA Substrate	100 Assays
10074-0	Caspase-4 Assay Kit, Colorimetric with Ac-LEVD-pNA Substrate	50 Assays
10074-1	Caspase-4 Assay Kit, Colorimetric with Ac-LEVD-pNA Substrate	100 Assays
10076-0	Caspase-6 Assay Kit, Colorimetric with Ac-VEID-pNA Substrate	50 Assays
10076-1	Caspase-6 Assay Kit, Colorimetric with Ac-VEID-pNA Substrate	100 Assays
10078-0	Caspase-8 Assay Kit, Colorimetric with Ac-IETD-pNA Substrate	50 Assays
10078-1	Caspase-8 Assay Kit, Colorimetric with Ac-IETD-pNA Substrate	100 Assays
10080-0	Caspase-9 Assay Kit, Colorimetric with Ac-LEHD-pNA Substrate	50 Assays
10080-1	Caspase-9 Assay Kit, Colorimetric with Ac-LEHD-pNA Substrate	100 Assays
10082-0	Caspase-10 Assay Kit, Colorimetric with Ac-AEVDD-pNA Substrate	50 Assays
10082-1	Caspase-10 Assay Kit, Colorimetric with Ac-AEVDD-pNA Substrate	100 Assays

# Apoptosis

## Caspase Assay Kits - Fluorometric

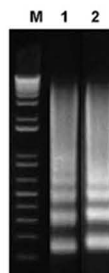
Cat. No.	Product Name	Size
10069-0	Caspase-1 Assay Kit, Fluorometric with Ac-YVAD-AFC Substrate	50 Assays
10069-1	Caspase-1 Assay Kit, Fluorometric with Ac-YVAD-AFC Substrate	100 Assays
10071-0	Caspase-2 Assay Kit, Fluorometric with Ac-VDVAD-AFC Substrate	50 Assays
10071-1	Caspase-2 Assay Kit, Fluorometric with Ac-VDVAD-AFC Substrate	100 Assays
10073-0	Caspase-3, 7 Assay Kit, Fluorometric with Ac-DEVD-AFC Substrate	50 Assays
10073-1	Caspase-3, 7 Assay Kit, Fluorometric with Ac-DEVD-AFC Substrate	100 Assays
10075-0	Caspase-4 Assay Kit, Fluorometric with Ac-LEVD-AFC Substrate	50 Assays
10075-1	Caspase-4 Assay Kit, Fluorometric with Ac-LEVD-AFC Substrate	100 Assays
10077-0	Caspase-6 Assay Kit, Fluorometric with Ac-VEID-AFC Substrate	50 Assays
10077-1	Caspase-6 Assay Kit, Fluorometric with Ac-VEID-AFC Substrate	100 Assays
10079-0	Caspase-8 Assay Kit, Fluorometric with Ac-IETD-AFC Substrate	50 Assays
10079-1	Caspase-8 Assay Kit, Fluorometric with Ac-IETD-AFC Substrate	100 Assays
10081-0	Caspase-9 Assay Kit, Fluorometric with Ac-LEHD-AFC Substrate	50 Assays
10081-1	Caspase-9 Assay Kit, Fluorometric with Ac-LEHD-AFC Substrate	100 Assays
10083-0	Caspase-10 Assay Kit, Fluorometric with Ac-AEVD-AFC Substrate	50 Assays
10083-1	Caspase-10 Assay Kit, Fluorometric with Ac-AEVD-AFC Substrate	100 Assays
10084-0	Caspase-12 Assay Kit, Fluorometric with Ac-ATAD-AFC Substrate	50 Assays
10084-1	Caspase-12 Assay Kit, Fluorometric with Ac-ATAD-AFC Substrate	100 Assays
10085-0	Caspase-13 Assay Kit, Fluorometric with Ac-LEED-AFC Substrate	50 Assays
10085-1	Caspase-13 Assay Kit, Fluorometric with Ac-LEED-AFC Substrate	100 Assays

### Apoptotic DNA Ladder Isolation Kit

Cat. No. 10047

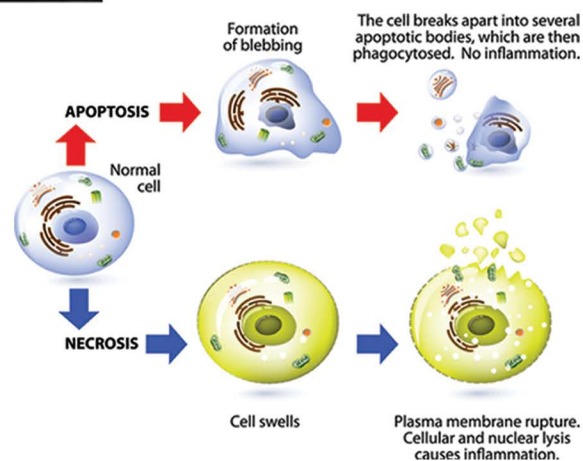


Our Apoptotic DNA Ladder Isolation Kit provides a method for isolating the apoptotic DNA fragments for DNA ladder analysis. The purification method used in our kit is much faster than other methods, such as phenol/chloroform extraction and DNA precipitation. The purified DNA can be easily analyzed on an agarose gel and compared with normal/control.



Apoptotic DNA was extracted from  $2 \times 10^6$  Jurkat cells treated with  $2 \mu\text{M}$  Camptothecin, as per the product instructions.

Lane M: 1 kb DNA Ladder;  
Lane 1: Apoptotic DNA (6 hours induction);  
Lane 2: Apoptotic DNA (12 hours induction).

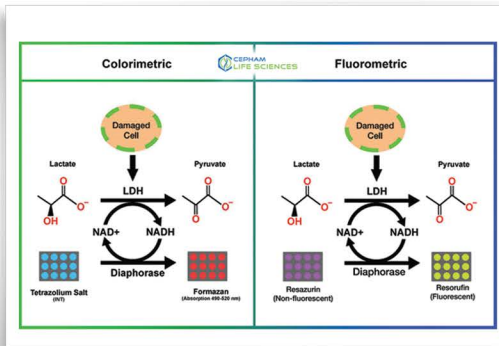


Cat. #	Product Name	Size
10047-0	Apoptotic DNA Ladder Isolation Kit	50 Preps

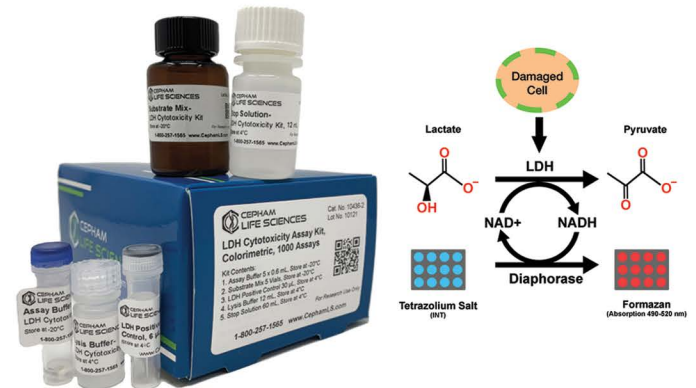


# Cytotoxicity Assay Kits

Cepham Life Sciences offers many cytotoxicity/cell viability assay kits, that are very sensitive and cost effective when compared with other kits in the market. Cytotoxicity can be monitored by various ways: assessing the cell viability or death by using very sensitive dyes or by measuring the biomarkers. For example, during cytotoxicity, if the cellular membranes are compromised, Lactate dehydrogenase (LDH), a soluble cytosolic enzyme is released into the culture medium. The released LDH activity is used as an indicator of cell viability, which can be determined using specific enzymatic steps. In the first step of the reaction, LDH catalyzes the reduction of  $\text{NAD}^+$  to  $\text{NADH}$  and  $\text{H}^+$  by oxidation of lactate to pyruvate. In the second step, the diaphorase uses the formed  $\text{NADH}$  and  $\text{H}^+$  to catalyze the reduction of a sensitive dye (INT; tetrazolium salt) to the brightly-colored compound formazan, and its absorbance can be measured at 490-520 nm using a microplate reader / spectrophotometer.



## LDH Cytotoxicity Assay Kit Colorimetric Cat. No. 10436-0, 10436-1



Our LDH-Cytotoxicity Assay Kit is a non-radioactive colorimetric assay, which quantitatively measures the lactate dehydrogenase (LDH), a cytosolic enzyme that is released upon cellular damage. The released LDH is measured using a coupled enzymatic reaction, which results in the conversion of a tetrazolium salt (iodonitroretazolium; INT) into a red formazan product. The amount of formazan formed is proportional to the amount of LDH released in the medium, and the absorbance can be measured at 490nm using a spectrophotometer or a 96-well plate reader.

## AlamarBlue™ Cell Viability Assay Reagent Cat. No. 10434-0, 10434-1



AlamarBlue™ Cell Viability Assay Reagent is used to quantitatively measure the viability of mammalian cell lines, bacteria, and fungi by incorporating a rapid, sensitive, and reliable fluorometric as well as colorimetric growth indicator. The assay involves conversion of AlamarBlue™ Reagent oxidized form (blue color reagent) to reduced form (red color) in viable cells, easily measured by using fluorescence or absorbance detecting instruments. The assay is homogenous, requiring no cell lysis or washing steps, and offers a simple, rapid, reliable, sensitive, safe and cost-effective measurement of cell viability. The AlamarBlue™ Reagent allows for viability studies involving exposure of tumor cell lines to chemical inhibitors and toxicology research to establish baseline data for predicting the toxicity of related novel agents by comparing the baseline datasets with known *in vivo* toxicity profiles.

## LDH Cytotoxicity Assay Kit Fluorometric Cat. No. 10437-0



Our LDH-Cytotoxicity Fluorometric Assay Kit offers a sensitive, rapid, and easy way for quantitatively measuring lactate dehydrogenase (LDH). The LDH released from damaged cells catalyzes the conversion of lactate to pyruvate and the reduction of  $\text{NAD}^+$  to  $\text{NADH}$  and  $\text{H}^+$ . Diaphorase, in the presence of  $\text{NADH}$  catalyzes the reduction of non-fluorescent Resazurin to fluorescent Resorufin with excitation and emission at 535 and 587 nm respectively. The amount of fluorescence is directly proportional to the amount of LDH released from the damaged cells.

# Cytotoxicity Assay Kits

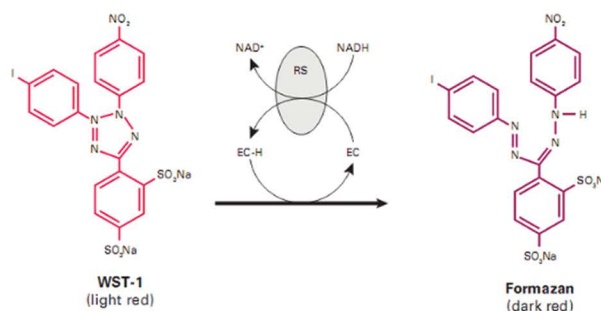
## Luciferase Assay Kit Cat. No. 10438-0



Luciferase, a highly sensitive reporter gene, is a commonly employed tool in gene expression/regulation studies with the bioluminescent method of signal detection and quantitation. The assay provides a great analytical platform for simple and convenient measurement of enzymatic activity with high efficacy.

- Linear over eight or more orders of magnitude of enzyme concentration
- Sensitive to 10–20 moles of Luciferase
- Cell lysis, sample prep, and assay complete in as little as 5 minutes

## WST1 Cell Cytotoxicity Assay Kit, Colorimetric Cat. No. 10440-0, 10440-1, 10440-2



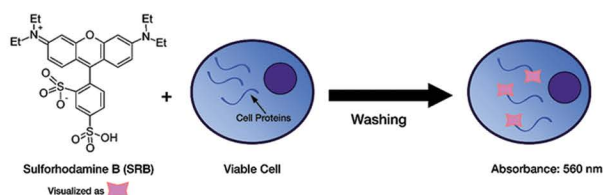
WST-1 Cell Cytotoxicity Assay is a sensitive and reliable assay for cell cytotoxicity and proliferation. The assay principle is based upon the reduction of the tetrazolium salt WST-1 to formazan by cellular dehydrogenases. The generation of the dark yellow-colored formazan is measured at 420–480nm (optimal at 440nm) and is directly correlated to the cell number. The assay is very convenient for performing in a single tissue culture well and requires no washing, harvesting, or solubilization of cells.

## Nitric Oxide (NO) Detection Kit Cat. No. 10439-0



Our Nitric Oxide (NO) Detection Kit is based on modified diazotization assay and detects total nitric oxide in cell culture supernatant, plasma, saliva and urine, etc. The enzymatic reaction proceeds with the conversion of nitrate to nitrite by Nitrate Reductase, followed by Griess-Reaction to form a colored Azo Dye product. This kit detects NO by indirectly measuring Nitrite (NO<sub>2</sub><sup>-</sup>), which is a byproduct of Nitric Oxide transformation, since the half-life of NO is very short and its accurate measurement is difficult. The quantification of NO is performed by measuring the absorbance at 540–570 nm with assay sensitivity between 0.1–50 μM.

## SRB Cytotoxicity Assay Kit, Colorimetric Cat. No. 66277-0



Sulforhodamine B (SRB) Cytotoxicity Assay Kit is a colorimetric assay based on the quantitative staining of cellular proteins by SRB. Our SRB Assay Kit offers a higher sensitivity and better linearity with cell number. The sensitivity of this assay for cytotoxicity detection is not influenced by the presence of any cellular debris. This assay is developed to be highly accurate, simple, reliable and reproducible. It has been widely used in cytotoxicity and cell viability studies.

# Cytotoxicity Assay Kits

## Other Assay Kits

### Acetylcholinesterase Assay Kit

Cat. No. 10674-0, 10674-1



Cepharm Life Sciences offers its Acetylcholinesterase (AChE) Assay Kit for highly sensitive and easy detection of AChE activity. Cell extracts, blood samples, and other solutions can be conveniently analyzed for AChE activity using DTNB to quantify thiocholine, a product of acetylthiocholine hydrolysis by AChE. To directly measure the level of AChE activity, the production of thiocholine is determined by observing the DTNB absorption intensity.

Cat. No.	Product Name	Size
10436-0	LDH Cytotoxicity Assay Kit – Colorimetric	200 Assays
10436-1	LDH Cytotoxicity Assay Kit – Colorimetric	1000 Assays
10437-0	LDH Cytotoxicity Assay Kit – Fluorometric	500 Assays
10438-0	Luciferase Assay Kit	100 Assays
10439-0	Nitric Oxide (NO) Detection Kit	1000 Assays
66277-0	SRB Cytotoxicity Assay Kit – Colorimetric	1000 Assays
10440-0	WST-1 Cell Cytotoxicity Assay Kit, Colorimetric	200 Assays
10440-1	WST-1 Cell Cytotoxicity Assay Kit, Colorimetric	500 Assays
10440-2	WST-1 Cell Cytotoxicity Assay Kit, Colorimetric	1000 Assays
10434-0	AlamarBlue™ Cell Viability Assay Reagent	10 ml
10434-1	AlamarBlue™ Cell Viability Assay Reagent	25 ml
10674-0	Acetylcholinesterase Assay Kit	100 Assays
10674-1	Acetylcholinesterase Assay Kit	200 Assays
66937-0	PEI 40K Transfection Reagent	1 ml

### PEI 40k Transfection Reagent, Cat. No. 66937-0

Our linearized polyethyleneimine transfection reagent is a high-charged cationic polymer having a linear polyethyleneimine as a main body with a molecular weight of 40000, which belts positively charged, and can be effectively combined with the negative nucleic acid, forms a complex, and is introduced into the cell. Linearized polyethylene imine (PEI 40K) transfection reagent is low toxic, with high transfection efficiency and low cost, and is a very popular cell instantaneous transfection reagent. The linear PEI 40K transfection reagent is widely used in a variety of cell lines including HEK-293, HEK293T, CHO-K1, COS-1, COS-7, NIH / 3T3, SF9, HepG2, and HeLA cells etc with transfection efficiency up to 90%.

NEW





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