



## **Broad Spectrum Protease Inhibitor Cocktail (EDTA free)**

**Catalog number: AR1182-1**

Boster's Broad Spectrum Protease Inhibitor Cocktail (EDTA free) is a complex of various protease inhibitors, which has been tested for inhibiting proteases and esterase broadly.

This package insert must be read in its entirety before using this product. For research use only. Not for use in diagnostic procedures.

## Broad Spectrum Protease Inhibitor Cocktail (EDTA free)

Catalog Number: AR1182-1

### Overview

|  |   |
|--|---|
| <b>Product Name</b>                      | Broad Spectrum Protease Inhibitor Cocktail (EDTA free)  |
| <b>SKU/Catalog Number</b>                | AR1182-1  |
| <b>Physical State</b>                    | Liquid, colorless, transparent  |
| <b>Pack Size</b>                         | 1mL   |
| <b>Content</b>                           | Broad Spectrum Protease Inhibitor Cocktail (EDTA free), 1mL (100X)<br>Containing AEBSF, aprotinin, bestatin, E-64, leupeptin and pepstatin A stabilized in dimethylsulfoxide (DMSO) |
| <b>Safety Precautions</b>                | Harmful. DMSO is toxic and causes irritation to the eyes and skin. Please operate with caution and wear eye and hand protection and proper lab garments.                            |
| <b>Recommended working concentration</b> | 100-fold dilution in lysis buffer<br><br>10 $\mu$ L of the Protease Inhibitor Cocktail solution is enough to inhibit degradation of proteins in 1 mL lysate.                        |
| <b>Storage</b>                           | Upon receipt store at -20°C. It is stable for one year. Product is shipped on ice.  |
| <b>Equivalent</b>                        | Thermofisher (Product No.78425)   |

### Notes:

| Type of DAPI   | Content  | Catalog Number |
|--|--|----------------|
| Broad Spectrum Protease Inhibitor Cocktail             | Broad Spectrum Protease Inhibitor Cocktail, 1mL (100X)<br>0.1M EDTA solution, 1mL (100X) | AR1182         |
| Broad Spectrum Protease Inhibitor Cocktail (EDTA free) | Broad Spectrum Protease Inhibitor Cocktail, 1mL (100X)                                   | AR1182-1       |

## BioChemical Information

| Protease Inhibitor Component | MW     | Protease Family Targeted  | Inhibition Type | Typical Working (1X) Conc. |
|------------------------------|--------|---|-----------------|----------------------------|
| E-64                         | 357.4  | Cysteine proteases (papain, calpain, lysosomal cathepsins)                            | Irreversible    | 15µM                       |
| AEBSF                        | 239.5  | Serine proteases (trypsin, chymotrypsin, plasmin, trypsinogen, urokinase, kallikrein) | Irreversible    | 1mM                        |
| Bestatin                     | 308.4  | Amino-peptidases  | Reversible      | 50µM                       |
| Leupeptin                    | 475.6  | Serine and cysteine proteases   | Reversible      | 20µM                       |
| Aprotinin                    | 6511.5 | Serine proteases (trypsin, chymotrypsin, plasmin, trypsinogen, urokinase, kallikrein) | Reversible      | 800nM                      |
| Pepstatin A                  | 685.9  | Aspartic acid proteases (pepsin and rennin)   | Reversible      | 10µM                       |

## Assay Principle

Broad Spectrum Protease Inhibitor Cocktail (EDTA free) is a Western blot related ready-to-use concentrated stock solution reagent containing a blend of six protease inhibitors that is to be added to cell lysis buffer to protect the integrity and functionality of native cellular proteins against degradation by multiple classes of endogenous proteases during protein extraction and sample preparation procedures. The product is supplied as a 100X concentrated stock solution in a liquid format for improved accuracy, solubility, and ease of use in comparison to traditional tablets.

## Properties

|                                    |  |
|------------------------------------|--|
| <b>Compatibility with reagents</b> | Fully compatible with cell lysis buffers and Broad Spectrum Phosphatase Inhibitor Cocktail   |
| <b>Compatibility with assays</b>   | Not MS-compatible: contain AEBSF   |
| <b>Reagent Type</b>                | Western Blotting related reagent; Inhibitors   |
| <b>Usage</b>                       | Protect native cellular proteins from destructive degradation by endogenous proteases following cell lysis<br>Preserve native cellular proteins intact and functional<br>Screen extracts for proteolytic activity<br>Study proteolysis in the regulation of cellular processes |
| <b>Target Specificity</b>          | Serine proteases, cysteine proteases, aspartic acid proteases, aminopeptidases   |
| <b>Target Sample</b>               | Cell lysis extracts  |
| <b>Description</b>                 | Boster's Broad Spectrum Protease Inhibitor Cocktail (EDTA free) is a complex of various protease inhibitors, which has been tested for inhibiting proteases and esterase broadly.  |

|                          |   |
|--------------------------|---|
| <b>Cite This Product</b> | Broad Spectrum Protease Inhibitor Cocktail (EDTA free) (Boster Biological Technology, Pleasanton CA, USA, Catalog # AR1182-1)   |
| <b>Application</b>       | Western blotting, protein purification, Co-IP; assays for protein expression, activity, modification, profiling and characterization, quantitative measurement; epitope tagging; reporter gene analysis<br>*Our <a href="#">Boster Guarantee</a> covers the use of this product in the above tested applications. |

## Background

Crude cell extracts contain a number of endogenous enzymes, such as proteases and phosphatases, which are capable of digesting the proteins present in the extract. An optimized method to improve the yield of intact and functional native proteins is to add inhibitors of these enzymes known to be present in the source material. This broad spectrum protease inhibitor cocktail is a complex of various protease inhibitors, which has been tested for inhibiting proteases and esterase broadly.

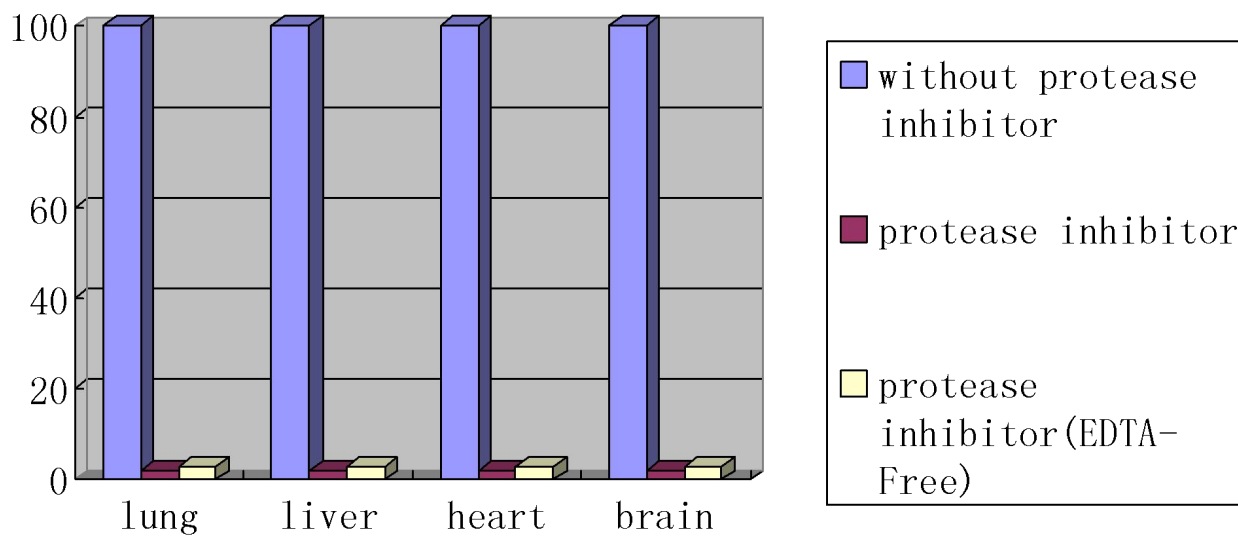
Protease inhibitors are critical reagents for the preservation of protein integrity during purification and analysis procedures by knocking out specific proteases to avoid peptide bond hydrolysis and subsequent protein destruction. They are biological or chemical compounds that function by reversibly or irreversibly binding to the protease. Most known proteases belong to one of four evolutionarily distinct enzyme families based on the functional groups involved in the peptide bond cleavage. No single chemical is effective for all types of proteases. A mixture or "cocktail" of several different inhibitor compounds is commonly used that consistently inhibit a multitude of protease classes to ensure that protein extracts do not degrade before analysis for target proteins of interest. Not using protease inhibitors leads to the loss of a large number of valuable proteins in a lysate sample, adversely affecting downstream applications by biologically meaningless representation of protein activities and gaining false negative immunostaining results for targets of interest.

## Usage and Handling

### Notes:

- Equilibrate the bottle to room temperature before use.
  - Vortex the bottle before use to ensure a homogeneous suspension
  - This protease inhibitor cocktail is supplied at a 100X concentration in DMSO and is generally effective when used at a 1X final concentration; however, if a sample contains particularly high levels of proteases, the effective cocktail concentration might require optimization.
1. Add broad spectrum protease inhibitor cocktail in lysis buffer at a ratio of 1:100 and mix well.
  2. Add the solution in to cell or tissue samples for protein extraction.  
Lysis buffer containing protease inhibitor cocktail should be freshly prepared before use.

**Result image**



**Protease activity for extracted protein from mouse tissue while using different protease inhibitor cocktails**