

Protease Inhibitor Cocktail (without EDTA, Mini tablet)

Cat# A1061 - 30 tablets

Store at 4°C for 2 years.

PRODUCT DESCRIPTION

Generally, the production and degradation of endogenous proteins are maintained in balance. Therefore, the overall protein level in cells should also stay at a static state while the environmental factors are stable. However, the rapid loss in total protein amount due to the termination of protein synthesis would lead to the poor performance of protein extraction *in vitro*. The protease might also cause the degradation of all kinds of protein, including phosphorylated protein, when there is no protein inhibitor added in sample. Thus, using a combination of various small molecule inhibitors to inhibit the function of protease are recommended. Protease inhibitor cocktail can be used in mammalian tissue lysate and cell extract in order to increase the protein stability. ACE Biolab's Protease Inhibitor Cocktail contains five inhibitors for different kinds of protease, which can protect the protein integrity effectively.

COMPOSITION

AEBSF	Serine protease	Irreversible
Aprotinin	Serine protease	Reversible
Bestatin	Aminopeptidases	Reversible
E-64	Cysteine proteases	Irreversible
Leupeptin	Serine and cysteine proteases	Reversible

INSTRUCTION

1. Can be used in Western Blot, Co-IP, pull-down assay, IF, IHC, kinase assay.
2. Each Mini tablet can be directly added into 10 mL cell lysate.
3. The 10X stock solution can be prepared by adding one tablet to 1 mL ddH₂O. The stock solution can store at 4°C for more than 1 week and at -20°C for more than 4 weeks.

NOTE

1. Vortex helps to increase the dissolution velocity of the tablet.
2. Some of the DUB protease, e.g. ATAXIN-3, cannot be inhibited by common protease inhibitors such as E-64, AEBSF, Bestatin, Leupeptin and Aprotinin.

PRODUCT USE LIMITATION

These products are intended for research use only.

TROUBLESHOOTING

Possible cause	Remedy
Can Protein Inhibitor Cocktail be used in excess of the prescribed dilution ratio?	The effectiveness of protease inhibitor would be affected by several factors, such as the concentration of protease and inhibitor, the activity of protease and how difficult the target protein can be degraded, etc. The classic concentration ratio is used in ACE Biolab's Protease Inhibitor Cocktail to ensure it is effective against different types of proteases. The product should be used according to the instruction in order to have the optimal protective effect. The commonality of such products is to dilute under a specified ratio while using. However, it is easy to have the misleading that the product can be diluted in excess of the recommended concentration due to the various levels of rigor in labeling form different manufactures. It is recommended to read through the instruction carefully before use so as not to affect the experiment results.
Will the excipients in the tablet affect the experiment results?	ACE Biolab's Protease Inhibitor Cocktail tablet adopts an optimized formula to minimize the impact of additional components. The tablet dissolves rapidly without forming bubbles. The solution is clear and transparent after dissolution of the tablet. It is compatible with various life science experiments, including demanding applications such as protein crystallization and Co-IP.
Which type of protease inhibitor cocktail should be choose? Tablet or liquid solution?	Proteases inhibitor cocktail is a low-toxicity and comprehensive reagent which protect proteins from being degraded by protease. Nowadays, as the consequence for digging deeper into field, many researches target on the proteins which relatively present in trace amounts in cells, such as receptors and signaling proteins. Protease inhibitor cocktail can provide the best protection on these precious samples during the extraction process of Co-IP, pull-down assay, etc.
Why the result still shows strong degradation after using inhibitor cocktail?	Protease inhibitor cocktail protects protein form being degraded by protease and can improve the protein extraction rate. Normally it works well for most of the proteins. The experiment design and procedure need to be carefully checked to maximize the inhibition effect if the protein extraction performance is still poor after using protease inhibitor cocktail. For example, the lysis solution should be prepared and mixed with the protease inhibitor cocktail before use. And the cells should be immediately added to the lysis solution which is prepared in advanced to prevent the protein from degradation throughout the process.
What are the advantages of protease inhibitor cocktail compared with PMSF which also often used in experiments?	PMSF is a classic serine protease inhibitor that has been widely used in the process of cell lysis and protein purification. However, due to the obvious shortcomings of PMSF in many aspects, it is gradually replaced by protease inhibitor cocktail that has better function and safety. AEBSF is used as a substitute for the high toxicity PMSA. The median lethal dose (Lethal dose, 50%) of AEBSD is 2834 mg/kg, while PMSF is 200 mg/kg. Which means the threshold of AEBSF is 14 times higher than PMSF. Meanwhile, AEBSF also has

	<p>higher reaction velocity against many serine proteases. On the other hand, PMSF is more easily to be degraded and to lost its function. The half-life of PMSF in aqueous solution is 30 minutes which cause quickly invalidated during cell lysis process.</p> <p>Protein inhibitor cocktail not only provides more comprehensive protection for the protein sample, the effect also lasts longer.</p>
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