

Product Information

ReadyShield™ Protease Inhibitor Cocktail

For Use with Plant Cell and Tissue Extracts

PIC0005

Product Description

Crude protein extracts contain endogenous proteases, which can degrade the proteins in the extracts. The best way to increase the yield of intact unmodified proteins is to add inhibitors for the proteases known to be present in the extract.

This ReadyShield™ Protease Inhibitor Cocktail has been optimized and tested for plant cell and tissue extracts. It contains inhibitors with a broad specificity for serine, cysteine, and acid proteases, and aminopeptidases. The cocktail has been tested on extracts from various plant tissues. Whole extracts of plant seedlings from pea (*Pisum sativum*), bean (*Phaseolus vulgaris*), wheat (*Triticum aestivum*), tobacco (*Nicotiana tabacum*), and arabidopsis (*Arabidopsis thaliana*) have been tested. Extracts of leaves or roots from pea, wheat, and tobacco have also been tested.

This cocktail is supplied as a ready-to-use solution using a proprietary non-freezing formulation.

ReadyShield™ Protease Inhibitor Cocktail for use with plant cell and tissue extract is a non-freezing formulation that contains the same inhibitors as is the DMSO based cocktail P9599.

Specific inhibitory properties of the components are:

- AEBSF – [4-(2-Aminoethyl)benzenesulfonyl fluoride hydrochloride] – serine proteases, e.g., trypsin, chymotrypsin, plasmin, kallikrein and thrombin
- Bestatin hydrochloride– aminopeptidases, e.g., leucine aminopeptidase and alanyl aminopeptidase.¹⁻⁴
- E-64 – [N-(trans-Epoxy succinyl)-L-leucine
- 4-guanidinobutylamide] – cysteine proteases, e.g., calpain, papain, cathepsin B, and cathepsin L
- Leupeptin hemisulfate salt– both serine and cysteine proteases, e.g., plasmin, trypsin, papain, and cathepsin B

- Pepstatin A – acid proteases, e.g., pepsin, renin and cathepsin D, and many microbial aspartic proteases
- 1,10-Phenanthroline - metalloproteases

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

The cocktail is shipped on wet ice and storage at –20 °C is recommended. The product, as supplied, is stable for two years. For short time periods the product can be stored at 2–8 °C.

Procedure

The recommended dilution of the cocktail in the biological extract is 1 ml of the cocktail per 100 ml of lysate from 30 g (wet weight) of various plant tissues.

Note: Not all lysates and extracts contain the same levels of endogenous proteases, and it may be necessary to adjust the volume of cocktail used.

References

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3. Aoyagi T., and Umezawa, H., *Acta Biol. Med. Ger.*, **40**, 1523-1529 (1981).
4. Mumford, R. A., et al, *Biochem. Biophys. Res. Comm.*, **103**, 565-572 (1981).

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