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ProductInformation

Mu-Phe-hPhe-FMK

Catalog Number **M4070**
Storage Temperature –20 °C

Synonym: N-Morpholineurea-phenylalanyl-homophenylalanylfluoromethyl ketone

Product Description

Molecular formula: $C_{25}H_{30}FN_3O_4$
Molecular weight: 455.5

Mu-Phe-hPhe-FMK is a cell-permeable inhibitor of cathepsins B and L.

Among the intracellular proteinases, thiol proteinases such as cathepsin B and cathepsin L, active at slightly acidic pH, play a role in lysosomal protein catabolism. Both have identical substrate specificity, but 4 M urea at pH 5.0 will inactivate cathepsin B, while cathepsin L retains its activity under these conditions.[3]

Cathepsin B is a lysosomal cysteine protease involved in cellular protein turnover.[4] Cathepsin B has a high abundance and exhibits both endopeptidase and peptidyldipeptidase activity.[3] This enzyme has been implicated in several pathological conditions including arthritis and tumor metastasis. Cathepsin L is the most powerful of the lysosomal proteinases and has a higher specific activity than cathepsin B in the degradation of physiological protein substrates. Cathepsin L, but not cathepsin B, can also generate kinins from high and low molecular weight kininogens in vitro.[4]

FMK is a trapping group responsible for irreversible inhibition, but is non-cytotoxic. Inhibition occurs when the FMK group covalently bonds to the –SH of an adjacent cysteine residue on the target protein.

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.

Preparation Instructions

Prepare stock 20 mM solutions in dry DMSO (>99.9%). Suggested working concentration is 40 µM

Storage/Stability

Store dessicated at –20 °C. Stock solutions stored in frozen aliquots at –20 °C are stable for 6-8 months. Allow containers to equilibrate to room temperature before opening.

References

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3. Kamboj, R. C., et al. A selective colorimetric assay for cathepsin L using Z-Phe-Arg-4-methoxy-β-naphthylamide. *Biochimie*, **75,** 873-878 (1993).
4. Kirschke H, Barrett AJ. 1987. Lysosomal cysteine proteases. In: Glaumann H, Ballard FJ, eds. Lysosomes: Their role in protein breakdown. London: Academic Press. pp 193-238.
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