

Product Information

N-Acetyl-Lys-Pro-Arg 7-Amino-4-Trifluoromethylcoumarin

Product Number **C6608**

Storage Temperature -20°C

Product Description

Molecular formula: $\text{C}_{29}\text{H}_{39}\text{F}_3\text{N}_8\text{O}_6$

Mol. wt.: 652.7

N-Acetyl-Lys-Pro-Arg 7-Amino-4-trifluoromethylcoumarin (Ac-KPR-AFC) is a fluorogenic substrate suitable for the assay of tryptase.¹

When Ac-KPR-AFC is hydrolyzed, the free AFC produced in the reaction can be quantified by fluorometric detection (excitation 400 nm, emission 505 nm) or by spectrophotometric detection at 380 nm (extinction coefficient = 12,600 at pH 7.2). When used in an enzyme assay with fluorescence detection, AFC has higher sensitivity than 4-methoxy-2-naphthylamide (MNA).²

Tryptases are a group of trypsin-related serine proteases expressed in mast cells and basophils. They are generally secreted as active, heparin-bound oligomers that are resistant to inactivation by plasma antiproteases. Human tryptases have been divided into three groups, α , β , and γ . α -Tryptase is the circulating isoform and is expressed by basophils. The β -isoforms are stored in secretory granules and are found in lung and skin mast cells. γ -Tryptases are referred to as novel tryptases and are distinct from α , β , and other human tryptases.^{3,4}

β -Tryptases are approximately 99% homologous with a single glycosylation the difference between βI - and βII -tryptase. Both βI - and βII -tryptase have a cleavage preference after Lys or Arg. Preference for extended specificity is Asp in P2, Arg or Lys in P3, and Pro at P4.⁵

Z-KPR-AFC is supplied as a trifluoroacetate salt.

Preparation Instructions

Prepare stock 10 mM solutions in DMSO.

Storage/Stability

Store at -20°C . Material stable for at least one year, if stored as recommended.

Store stock solutions in frozen aliquots at -20°C . Stock solutions are stable 6-8 months under these conditions. Allow the material to warm to room temperature before use to ensure stability.

References

1. Cushman, D.W., and Cheung, H. S., Spectrophotometric assay and properties of the angiotensin-converting enzyme of rabbit lung. *Biochem. Pharm.*, **20**, 1637-1648 (1971).
2. Johansen, H. T., *et al.*, Colorimetric and fluorimetric microplate assays for legumain and a staining reaction for detection of the enzyme after electrophoresis. *Anal. Biochem.*, **273**, 278-283 (1999).
3. Pallaoro, M., *et al.*, Characterization of Genes encoding known and novel human mast cell tryptases on chromosome 16p13.3. *J. Biol. Chem.*, **274**, 3355 (1999).
4. Caughey, G. H., *et al.*, Characterization of human γ -tryptases, novel members of the chromosome 16p mast cell tryptase and prostatin gene families. *J. Immunol.*, **164**, 6566-75 (2000).
5. Harris, J. L., *et al.*, Definition of the extended substrate specificity determinants for β -tryptases I and II. *J. Biol. Chem.*, **276**, 34941-34947 (2001).

JXU,JWM,RBG,MAM 12/05-1

Sigma brand products are sold through Sigma-Aldrich, Inc.

Sigma-Aldrich, Inc. warrants that its products conform to the information contained in this and other Sigma-Aldrich publications. Purchaser must determine the suitability of the product(s) for their particular use. Additional terms and conditions may apply. Please see reverse side of the invoice or packing slip.