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ProductInformation

α-Chymotrypsin TLCK Treated from bovine pancreas

Product Number **C 3142**
Storage Temperature -0 °C

Product Description

Enzyme Commission Number (EC): 3.4.21.1
CAS Number: 9004-07-3
Molecular Weight: 25 kDa[1]
pI: 8.75[2]
Extinction Coefficient: $E^{1\%}$: 20.4 (280 nm), E^{mM}: 5.2 (281 nm)[3]

This material is treated with TLCK to inactivate trypsin which is usually present in chymotrypsin.
α-Chymotrypsin has 241 amino acid residues contained in three polypeptide chains (A chain-13 residues, B chain-131 residues, and C chain-97 residues) linked by disulfide bridges. It selectively catalyzes the hydrolysis of peptide bonds on the C-terminal side of tyrosine, phenylalanine, tryptophan, and leucine. A secondary hydrolysis will also occur on the C-terminal side of methionine, isoleucine, serine, threonine, valine, histidine, glycine, and alanine.[1] Its activity in organic solvents has been reported.[4]

α-Chymotrypsin is both activated and stabilized by Ca^{2+}. The enzyme is active in the presence of 0.1% SDS and 2 M guanidine hydrochloride. It is a serine protease and is inhibited by diisopropyl fluorophosphate (DFP), phenylmethanesulfonyl fluoride (PMSF), N-p-tosyl-L-phenylalanine chloromethyl ketone (TPCK), chymostatin, aprotinin, α_1-antitrypsin, and α_2-macroglobulin. α-Chymotrypsin is also completely inhibited by 10 mM Cu^{2+} and Hg^{2+}.[1]

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This material is soluble in 1 mM HCl (10 mg/ml), yielding a clear solution.

Storage/Stability

Solutions prepared in 1 mM HCl containing 2 mM $CaCl_2$ may be stored at -20 °C as frozen aliquots for approximately 1 week. Autolysis will occur when stored at a higher pH. Calcium ion serves as a stabilizer.[1]

Procedure

For peptide digestion, use a ratio (w/w) of approximately 1:60 for chymotrypsin:peptide. Perform peptide digests in 100 mM Tris HCl containing 10 mM CaCl2, pH 7.8, at 30 °C. Self digestion may occur if temperatures above 37 °C are used.

References

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3. Nakagawa, Y., and Bender, M. L., Methylation of histidine-57 in α-chymotrypsin by methyl p-nitrobenzenesulfonate. A new approach to enzyme modification. Biochemistry, **9(2)**, 259-267 (1970).
4. Zaks, A., and Klibanov, A. M., Enzymatic catalysis in nonaqueous solvents. J. Biol. Chem., **263(7)**, 3194-3201 (1988).

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