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ProductInformation

4-Methylumbelliferyl p-trimethylammonio cinnamate chloride

Product Number **M 4507**
Storage Temperature -0 °C

Product Description

Molecular Formula: $C_{22}H_{22}ClNO_4$
Molecular Weight: 399.9
CAS Number: 34197-47-2
Melting Point: 204-206 °C[1]
Synonym: MUTMAC

4-Methylumbelliferyl p-trimethylammoniocinnamate chloride (MUTMAC) is a good titrant for α-chymotrypsin. When α-chymotrypsin reacted with MUTMAC, acylation was complete in less than 2 min at pH values between 7.4 and 8.3, and the rate of deacylation was negligible. A solution of α-chymotrypsin was assayed spectrofluorimetrically with MUTMAC. The released 4-methylumbelliferone was measured using excitation and emission wavelengths of 365 nm and 410 nm, respectively.[1] The amount of 4-methylumbelliferone liberated was proportional to the enzyme concentration (12 μM) and independent of both the concentration of MUTMAC (0.16 to 1.600 μM) and of pH in the range 6.8 to 8.3. The MUTMAC reacts with α-chymotrypsin in less than 2 minutes, has no turnover and is sensitive to 10^{-11} mole of enzyme.[2]

Solutions of α- and β-trypsin, thrombin, Factor X_a, α-chymotrypsin can be titrated spectrofluorimetrically with MUTMAC with accuacy and precision comparable to spectrophotometric methods. The spectrofluorimetric method can be used with as little as 0.02 nmol of enzyme; the spectrophotometric method requires about 1 nmol of enzyme.

Precautions and Disclaimer

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

Preparation Instructions

This product is soluble in pyridine:water (1:1, 50 mg/ml) with heat, yielding a clear, light yellow/green solution. MUTMAC has also been dissolved in water (40 mg/ml).[1]

Storage/Stability

Aqueous solutions (0.05-0.2 mM, 20-80 μg/ml) of MUTMAC can be stored frozen for several weeks.[1]

References

1. Jameson, G. W., et al., Determination of the operational molarity of solutions of bovine α-chymotrypsin, trypsin, thrombin and factor X_a by spectrofluorimetric titration. Biochem. J., **131(1)**, 107-117 (1973).
2. Coleman, P. L., et al., Some sensitive methods for the assay of trypsinlike enzymes. Meth. Enzymol., **45**, 12-26 (1976).

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