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Product Information

3-Methyladenine

Catalog Number **M9281**
Store at Room Temperature

Molecular Formula: $C_6H_7N_5$
Molecular Weight: 149.2
CAS RN: 5142-23-4
Synonyms: 6-amino-3-methylpurine, 3-MA, 3MeA

Product Description

3-Methyladenine (3-MA) is a methylated derivative of adenine that has been used as an *in vivo* marker for the methylation of DNA. 3-MA and 7-methylguanine are the two main *N*-methylpurines formed in DNA upon exposure to methylating agents. 3-MA is removed from damaged DNA via the DNA base excision repair pathway, which begins with the enzyme *N*-methylpurine DNA glycosylase. The dependence of 3-MA repair on nucleotide excision repair in mammalian cell lines has been studied.[1,2]

GC-MS methods for the analysis of 3-MA from urine have been published.[3,4] A report has analyzed 3-MA levels in urine upon controlled exposure to tobacco smoke, using a combination of HPLC separation and a competitive radioimmunoassay.[5]

3-MA is a known inhibitor of autophagy. 3-MA has been shown to inhibit deprivation-induced lysosomal degradation of both endogenous and endocytosed protein in cultured BHK-21 hamster fibroblasts, and also to inhibit protein degradation in human IMR-90 fibroblasts.[6] 3-MA has been used in cultured hepatoma cells to inhibit degradation of aldolase B.[7]

Precautions and Disclaimer

For R&D use only. Not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

This product is tested for solubility in DMF (10 mg/mL; may require gentle heating). It is also soluble in water, 95% ethanol, or 1 N NaOH at 30 mg/mL with heating, but upon cooling, the product precipitates from solution. One publication cites preparation of a stock solution of 3-MA in DMSO at 100 mM.[8]

Storage/Stability

One publication reports storage of 100 mM stock solutions of 3-MA in water at -20 °C, with thawing at 100 °C to re-dissolve the frozen stock solution for use.[9] Another publication indicates preparation of a 4 mM stock solution of 3-MA in DMEM with long-term storage at -20 C.[10]

References

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