

Product Information

3-Methyladenine Ready Made Solution

50 mM (7.5 mg/mL in MES buffer)

Catalog Number **SAE0107**

Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS RN 5142-23-4

Synonyms: 6-amino-3-methylpurine, 3-MA

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}

3-MA has been widely used as an autophagy (lysosomal self-degradation) inhibitor based on its inhibitory effects on class I and class III phosphoinositide 3-kinase (PI3K) activity, which is known to be essential for induction of autophagy. 3-MA inhibits autophagy by blocking autophagosome formation.

One study in mice has indicated different effects of 3-MA on class I and class II PI3K's. 3-MA is a persistent blocker of class I PI3K, but is a transient inhibitor of class III PI3K. Thus the different effects of 3-MA on different PI3K's need to be considered during studies of 3-MA in autophagy.³ 3-MA has been used in a mouse model study of the relation of autophagy inhibition to chronic stress-induced immunosuppression.⁴ 3-MA has also been studied in a rat model of 3,4-methylenedioxymethamphetamine (MDMA)-induced neurotoxicity and autophagy.⁵

Components

This product is a 50 mM (7.5 mg/mL) aqueous solution of 3-MA in 30 mM MES buffer, pH 3.85.

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.

Storage/Stability

It is recommended to store the 3-Methyladenine Ready Made Solution at $-20\text{ }^{\circ}\text{C}$. It is recommended to avoid freeze-thaw cycles. The solution should be equilibrated to room temperature before use. A vortex mixer may be used, if needed, to homogenize the solution. When stored properly, 3-Methyladenine Ready Made solution should be stable for 2 years.

References

1. Fishel, M.L. *et al.*, *Cancer Res.*, **63**(3), 608-615 (2003).
2. Plosky, B. *et al.*, *DNA Repair*, **1**(8), 683-696 (2002).
3. Wu, Y.-T. *et al.*, *J. Biol. Chem.*, **285**(14), 10850-10861 (2010).
4. Qin, A., *et al.*, *Cell Biosci.*, **9**, 13 (2019).
5. Shih, J.H. *et al.*, *Pharmacol. Res.*, **142**, 283-293 (2019)

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