

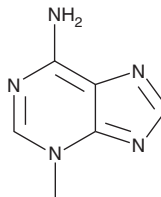
PRODUCT INFORMATION



3-Methyladenine

Item No. 13242

CAS Registry No.: 5142-23-4
Formal Name: 3-methyl-3H-purin-6-amine
Synonyms: 3-MA, NSC 66389
MF: C₆H₇N₅
FW: 149.2
Purity: ≥95%
UV/Vis.: λ_{max}: 212, 274 nm
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

3-Methyladenine (3-MA) is supplied as a crystalline solid. A stock solution may be made by dissolving the 3-MA in the solvent of choice, which should be purged with an inert gas. 3-MA is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. The solubility of 3-MA in these solvents is approximately 5, 1.4, and 2 mg/ml, respectively.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of 3-MA can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 3-MA in PBS (pH 7.2) is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Autophagy is a multi-step process that involves the degradation and digestion of intracellular components by the lysosome. This process allows cells to efficiently mobilize and recycle cellular constituents, and also prevents the accumulation of damaged organelles, misfolded proteins, and invading microorganisms. mTOR, whose activation is controlled by phosphoinositide 3-kinase (PI3K), is a key regulator of autophagy.¹ 3-MA is a specific inhibitor of PI3K activity and one of the most widely used inhibitors of the initial phase of the autophagic process: the sequestering of cytoplasmic material by the lysosome.^{2,3} At 5 mM, 3-MA inhibits protein degradation in rat hepatocytes by 65%.² 3-MA has been shown to block class I, class II, and class III PI3Ks, including some downstream targets, and to suppress the invasion of highly metastatic human fibrosarcoma HT1080 cells at 10 mM.^{4,5}

References

1. Backer, J.M. *Biochem. J.* **410**, 1-17 (2008).
2. Seglen, P.O. and Gordon, P.B. *Proc. Natl. Acad. Sci. USA* **79**, 1889-1892 (1982).
3. Chang, Y.-Y., Juhász, G., Goraksha-Hicks, P., et al. *Biochem. Soc. Trans.* **37**, 232-236 (2009).
4. Wu, Y.-T., Tan, H.-L., Shui, G., et al. *J. Biol. Chem.* **285**(14), 10850-10861 (2010).
5. Ito, S., Koshikawa, N., Mochizuki, S., et al. *Int. J. Oncol.* **31**, 261-268 (2007).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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