

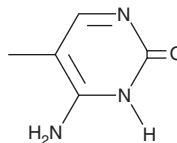
PRODUCT INFORMATION



5-Methylcytosine

Item No. 38741

CAS Registry No.: 554-01-8
Formal Name: 6-amino-5-methyl-2(1H)-pyrimidinone
Synonyms: m⁵C, NSC 137776
MF: C₅H₇N₃O
FW: 125.1
Purity: ≥98%
UV/Vis.: λ_{max}: 276 nm
Supplied as: A 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

5-Methylcytosine is supplied as a solid. A stock solution may be made by dissolving the 5-methylcytosine in the solvent of choice, which should be purged with an inert gas. 5-Methylcytosine is soluble in the organic solvent DMSO at a concentration of approximately 2 mg/ml.

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 5-methylcytosine can be prepared by directly dissolving the solid in aqueous buffers. The solubility of 5-methylcytosine in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

5-Methylcytosine is a methylated derivative of the pyrimidine base cytosine (Item No. 36219) and its presence in DNA is generally associated with reduced gene transcription.^{1,2} Increased levels of 5-methylcytosine have been found in non-expressed and untranslated DNA sequences, and levels of 5-methylcytosine are increased on developmental genes to reduce aberrant expression in adults.² 5-Methylcytosine is also found in the tRNA, mRNA, and rRNA from bacteria, archaea, and eukaryotes.³

References

1. Berg, J.M., Tymoczko, J.L., and Stryer, L. Nucleotide biosynthesis. *Biochemistry*. 5th edition, W.H. Freeman (2002).
2. Breiling, A. and Lyko, F. Epigenetic regulatory functions of DNA modifications: 5-methylcytosine and beyond. *Epigenetics Chromatin* **8**, 24 (2015).
3. Edelheit, S., Schwartz, S., Mumbach, M.R., et al. Transcriptome-wide mapping of 5-methylcytidine RNA modifications in bacteria, archaea, and yeast reveals m⁵C within archaeal mRNAs. *PLoS Genetics* **9**(6), e1003602 (2013).

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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