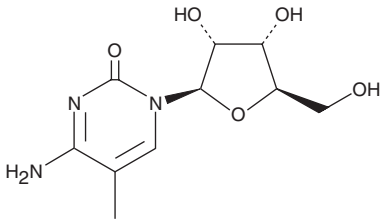
PRODUCT INFORMATION

5-Methylcytidine

Item No. 16111

CAS Registry No.:	2140-61-6
Formal Name:	5-methyl-cytidine
Synonym:	NSC 363933
MF:	$C_{10}H_{15}N_3O_5$
FW:	257.2
Purity:	≥98%
UV/Vis.:	λ_{max}: 279 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

5-Methylcytidine is supplied as a crystalline solid. A stock solution may be made by dissolving the 5-methylcytidine in the solvent of choice, which should be purged with an inert gas. 5-Methylcytidine is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of 5-methylcytidine in these solvents is approximately 20 and 10 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 5-methylcytidine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 5-methylcytidine in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

5-Methylcytidine is a modified nucleoside derived from 5-methylcytosine and is a minor constituent of RNA as well as DNA for certain organisms.[1,2] Roughly one to two residues of 5-methylcytidine occur in every 1,000 RNA residues.[3] It has been used in epigenetics research, especially in studies involving DNA methylation processes involved in the establishment of genomic imprinting and in the control of gene expression and differentiation.[4]

References

1. 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).
2. Mahto, S.K. and Chow, C.S. Probing the stabilizing effects of modified nucleotides in the bacterial decoding region of 16S ribosomal RNA. *Bioorg. Med. Chem.* **21(10)**, 2720-2726 (2013).
3. Guntaka, R.V., Katz, R.A., Weiner, A.J., *et al.* Effect of 5-methylcytidine on virus production in avian sarcoma virus-infected chicken embryo cells. *J. Virol.* **29(2)**, 475-482 (1979).
4. Zhu, R., Howorka, S., Pröll, J., *et al.* Nanomechanical recognition measurements of individual DNA molecules reveal epigenetic methylation patterns. *Nat. Nanotechnol.* **5(11)**, 788-791 (2010).

CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.**CAYMANCHEM**.COM