

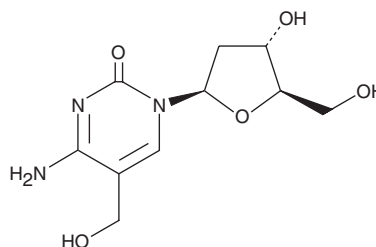
PRODUCT INFORMATION



5-(Hydroxymethyl)-2'-deoxycytidine

Item No. 18162

CAS Registry No.: 7226-77-9
Formal Name: 2'-deoxy-5-(hydroxymethyl)-cytidine
MF: C₁₀H₁₅N₃O₅
FW: 257.2
Purity: ≥95%
UV/Vis.: λ_{max}: 277 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-(Hydroxymethyl)-2'-deoxycytidine is supplied as a crystalline solid. A stock solution may be made by dissolving the 5-(hydroxymethyl)-2'-deoxycytidine in the solvent of choice, which should be purged with an inert gas. 5-(Hydroxymethyl)-2'-deoxycytidine is soluble in organic solvents such as DMSO and dimethyl formamide. The solubility of 5-(hydroxymethyl)-2'-deoxycytidine in these solvents is approximately 20 and 5 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-(hydroxymethyl)-2'-deoxycytidine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of 5-(hydroxymethyl)-2'-deoxycytidine in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

DNA methylation occurs mainly at the 5'-position of cytosine rings (5-methylcytosine) and occurs almost exclusively in CpG islands. Another epigenetic modification in DNA has been recently identified that involves hydroxymethylation of this same base (5-hydroxymethylcytosine), which potentially offers another level of transcriptional control.¹ 5-(Hydroxymethyl)-2'-deoxycytidine is a modified pyrimidine that is capable of producing interstrand cross-links in double-stranded DNA and has been used to quantify DNA hydroxymethylation levels in biological samples.²⁻⁴

References

1. Song, C.-X., Szulwach, K.E., Fu, Y., *et al.* Selective chemical labeling reveals the genome-wide distribution of 5-hydroxymethylcytosine. *Nat. Biotechnol.* **29(1)**, 68-72 (2011).
2. Le, T., Kim, K.-P., Fan, G., *et al.* A sensitive mass-spectrometry method for simultaneous quantification of DNA methylation and hydroxymethylation levels in biological samples. *Anal. Biochem.* **412(2)**, 203-209 (2011).
3. Clark, T.A., Lu, X., Luong, K., *et al.* Enhanced 5-methylcytosine detection in single-molecule, real-time sequencing via Tet1 oxidation. *BMC Biol.* **11(4)**, 1-10 (2013).
4. Kraus, A.M., Park, Y.J., Plass, C., *et al.* Determination of genomic 5-hydroxymethyl-2'-deoxycytidine in human DNA by capillary electrophoresis with laser induced fluorescence. *Epigenetics* **6(5)**, 560-565 (2011).

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.

WARRANTY AND LIMITATION OF REMEDY

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