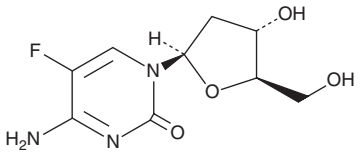
PRODUCT INFORMATION

2'-Deoxy-5-fluorocytidine

Item No. 37477

CAS Registry No.: 10356-76-0
Formal Name: 2'-deoxy-5-fluoro-cytidine
Synonyms: 2'-DFCR, 5-Fluoro-2′-deoxycytidine, NSC 48006, Ro 5-1090
MF: $C_9H_{12}FN_3O_4$
FW: 245.2
Purity: ≥98%
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

2'-Deoxy-5-fluorocytidine is supplied as a solid. A stock solution may be made by dissolving the 2'-deoxy-5-fluorocytidine in the solvent of choice, which should be purged with an inert gas. 2'-Deoxy-5-fluorocytidine is soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide (DMF). The solubility of 2'-deoxy-5-fluorocytidine in ethanol is approximately 5 mg/ml and approximately 20 mg/ml in DMSO and DMF.

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 2'-deoxy-5-fluorocytidine can be prepared by directly dissolving the solid in aqueous buffers. The solubility of 2'-deoxy-5-fluorocytidine in PBS (pH 7.2) is approximately 5 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

2'-Deoxy-5-fluorocytidine is an antimetabolite, an inhibitor of DNA methylation and deoxycytidine kinase, and a prodrug form of the FdUMP prodrug 5-fluorouracil (Item No. 14416).[1-4] Incorporation of 2'-deoxy-5-fluorocytidine into a synthetic DNA polymer inhibits methylation of DNA in a cell-free assay, and 2'-deoxy-5-fluorocytidine-containing oligonucleotides form a covalent complex with DNA methyltransferase 3a (Dnmt3a).[1,2] 2'-Deoxy-5-fluorocytidine inhibits deoxycytidine kinase (dCK; IC_{50} = 120 nM).[3] It reduces the cytopathic effects of the influenza H5N1 strain Vietnam/1203/2004 in MDCK cells (IC_{50} = 0.19 µM).[5] 2'-Deoxy-5-fluorocytidine (12 mg/kg) in combination with the cytidine deaminase inhibitor tetrahydrouridine (Item No. 16402) inhibits tumor growth in an ascitic mammary adenocarcinoma 755 murine model.[4] It induces embryonic lethality and skeletal malformations in a dose-dependent manner when administered to pregnant mice.[6]

References

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2. Reither, S., Li, F., Gowher, H., *et al. J. Mol. Biol.* **329(4)**, 675-684 (2003).
3. Tarver, J.E., Jessop, T.C., Carlsen, M., *et al. Bioorg. Med. Chem. Lett.* **19(23)**, 6780-6783 (2009).
4. Boothman, D.A., Briggle, T.V., and Greer, S. *Cancer Res.* **47(9)**, 2344-2353 (1987).
5. Kumaki, Y., Day, C.W., Smee, D.F., *et al. Antiviral Res.* **92(2)**, 329-340 (2011).
6. Kleinbrecht, J. *Teratology* **3(4)**, 315-318 (1970).

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