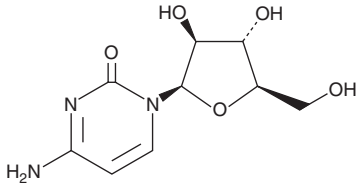
PRODUCT INFORMATION

Cytarabine

Item No. 16069

CAS Registry No.:	147-94-4
Formal Name:	4-amino-1-β-D-arabinofuranosyl-2(1H)-pyrimidinone
Synonyms:	1-β-D-Arabinofuranosylcytosine, NSC 63878, NSC 287459, U-19920A
MF:	$C_9H_{13}N_3O_5$
FW:	243.2
Purity:	≥95%
UV/Vis.:	λ_{max}: 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

Cytarabine is supplied as a crystalline solid. A stock solution may be made by dissolving the cytarabine in the solvent of choice, which should be purged with an inert gas. Cytarabine is soluble in organic solvents such as DMSO and dimethyl formamide (DMF). The solubility of cytarabine in these solvents is approximately 0.2 and 0.1 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 cytarabine can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of cytarabine in PBS (pH 7.2) is approximately 2 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Cytarabine (ara-C) is a nucleoside analog and prodrug form of the DNA polymerase inhibitor ara-CTP.[1] It is triphosphorylated to ara-CTP by the successive actions of deoxycytidine kinase, deoxycytidylate kinase, and nucleoside diphosphate kinase.[2] Ara-C inhibits proliferation of HL-60, ML-1, Raji, and Jurkat human leukemia cell lines with IC_{50} values of 37, 17, 16, and 72 nM, respectively.[3] It induces cell cycle arrest at the G_0/G_1 phase in HL-60 cells when used at concentrations of 2.5 and 15 µM.[1] ara-C (75 mg/kg per day, i.p.) reduces tumor growth and increases tumor caspase-3 activity in an MOLM-13 mouse xenograft model.[4] It also increases survival and reduces brain herpesvirus titers in infected rats when administered subcutaneously at doses of 80 and 320 mg/kg.[5] Formulations containing ara-C have been used in the treatment of acute myeloid leukemia.

References

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2. Emadi, A. and Karp, J.E. *Pharmacogenomics* **13(11)**, 1257-1269 (2012).
3. Qin, T., Youssef, E.M., Jelinek, J., *et al. Clin. Cancer Res.* **13(14)**, 4225-4232 (2007).
4. Kelly, K.R., Espitia, C.M., Taverna, P., *et al. Br. J. Haematol.* **156(1)**, 129-132 (2012).
5. Renis, H.E. Antimicrob. *Agents Chemother.* **4(4)**, 439-444 (1973).

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