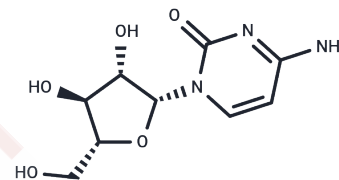


Cytarabine

Chemical Properties

CAS No. :	147-94-4
Formula:	C ₉ H ₁₃ N ₃ O ₅
Molecular Weight:	243.22
Storage:	Powder: -20°C for 3 years In solvent: -80°C for 1 year Actual storage temperature shall be subject to the COA.



Biological Description

Description	Cytarabine (Ara-C) is a nucleoside analog, an inhibitor of DNA synthesis (IC ₅₀ =16 nM). Cytarabine inhibits DNA polymerase and induces cell cycle arrest, autophagy, and apoptosis. Cytarabine has antitumor activity.
Targets(IC ₅₀)	Apoptosis,Nucleoside Antimetabolite/Analog,Endogenous Metabolite,Autophagy,HSV, DNA/RNA Synthesis,Virus Protease
In vitro	<p>METHODS: Primary AML cells were treated with Cytarabine (10-5000 nM) for 24 h. Cell viability was measured using MTT method.</p> <p>RESULTS: Cytarabine showed a dose-dependent growth inhibitory effect with an IC₅₀ of 1.12 μM. [1]</p> <p>METHODS: Human histiocytic lymphoma cells U937 were treated with Cytarabine (10-1000 nM) for 72 h, and the cell cycle was detected by Flow Cytometry.</p> <p>RESULTS: Cytarabine dose-dependently decreased the proportion of cells in G₁ phase and increased the proportion of cells in S phase in cells treated with 10 and 100 nM. At the highest dose of 1000 nM, Cytarabine caused a significant increase in the proportion of sub-G₁ and G₂/M phases. [2]</p> <p>Translated with DeepL.com (free version)</p>
In vivo	<p>METHODS: To study chemotherapy resistance in AML, Cytarabine (10-60 mg/kg) was administered intraperitoneally to NSG mice bearing human AML tumors once daily for five days.</p> <p>RESULTS: In all mice treated with 60 mg/kg Cytarabine, cytoreduction occurred at 2 weeks post-treatment and relapsed 4-13 weeks post-treatment. There was a dose-response relationship in the model in terms of minimum leukemia burden and time to peripheral blood relapse. [3]</p> <p>METHODS: To assay antitumor activity in vivo, Cytarabine (6.25 mg/kg once daily) and sorafenib (60 mg/kg twice daily) were administered intraperitoneally to a NOD-SCID-IL2Rγnull mouse model harboring the human AML tumor U937 once weekly or for forty-eight days.</p> <p>RESULTS: Cytarabine in combination with sorafenib produced potent anti-AML activity in vivo. [4]</p> <p>Translated with DeepL.com (free version)</p>
Kinase Assay	In Vitro Growth Inhibition Assay: Stock solution of Cytarabine is prepared in absolute ethanol, and serial dilutions of Cytarabine are prepared. CCRF-CEM cells are suspended

Kinase Assay	in RPMI medium supplemented with 10% FBS, 0.1% gentamicin, and 1% sodium pyruvate. The cells are suspended in their respective media to give 10 mL volumes of cell suspension at a final density of $3-6 \times 10^4$ cells/mL. Appropriate volumes of Cytarabine solution are transferred to the cell suspensions, and incubation is continued for 72 hours. The cells are spun down and resuspended in fresh Cytarabine -free medium, and final cell counts are determined. The data are analyzed by sigmoidal curve fitting of the cell count versus Cytarabine concentration, and the results are expressed as the IC50 (Cytarabine concentration that inhibits cell growth to 50% of the control value).
Cell Research	Cells are incubated in the presence of different concentrations of Cytarabine at 37 °C for 24, 48, and 72 hours. At the time of 20-, 44-, or 68-hour incubation in the presence of Cytarabine, 10 mL of cell proliferation reagent WST-1 solution is added. After 2- and 4-hour incubation with WST-1, cell metabolic activity is assessed with colorimetric changes quantified by measuring the absorbance in a spectrophotometer at 450 nm. And cell division times are calculated from eosin counting in parallel with viability assay(Only for Reference)

Solubility Information

Solubility	DMSO: 262.5 mg/mL (1079.27 mM),Sonication is recommended. H2O: 24.3 mg/mL (99.91 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)
In vivo Formulation	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 5 mg/mL (20.56 mM),Sonication is recommended. <i>Please add the solvents sequentially, clarifying the solution as much as possible before adding the next one. Dissolve by heating and/or sonication if necessary. Working solution is recommended to be prepared and used immediately. The formulation provided above is for reference purposes only. In vivo formulations may vary and should be modified based on specific experimental conditions.</i>

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.1115 mL	20.5575 mL	41.115 mL
5 mM	0.8223 mL	4.1115 mL	8.223 mL
10 mM	0.4112 mL	2.0558 mL	4.1115 mL
50 mM	0.0822 mL	0.4112 mL	0.8223 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Note: The dilution table applies only to solid products. For liquid products, please calculate the stock solution based on the stated concentration and/or density.

Reference

- Desai UN, et al. Enhancement of the cytotoxic effects of Cytarabine in synergism with Hesperidine and Silibinin in Acute Myeloid Leukemia: An in-vitro approach. *J Cancer Res Ther.* 2015 Apr-Jun;11(2):352-7.
- He S, Li Y, Shi X, et al. DNA methylation landscape reveals LIN7A as a decitabine-responsive marker in patients with t(8; 21) acute myeloid leukemia. *Clinical Epigenetics.* 2023, 15(1): 1-13.
- Islam S, Rahaman M H, Yu M, et al. Anti-Leukaemic Activity of Rilpivirine Is Mediated by Aurora A Kinase Inhibition. *Cancers.* 2023, 15(4): 1044.
- Tomic B, et al. Cytarabine-induced differentiation of AML cells depends on Chk1 activation and shares the mechanism with inhibitors of DHODH and pyrimidine synthesis. *Sci Rep.* 2022 Jul 5;12(1):11344.
- Robin L. Perry, et al. Ara-C Treatment of Acute Myeloid Leukemia Does Not Lead to Prolonged Enrichment of Stem Cells or a Cell Cycle Arrest. *Blood.* 2010; 116(21):2178.
- Zhao Y, Zhao N, Cai Y, et al. An algal lectin griffithsin inhibits Hantaan virus infection in vitro and in vivo. *Frontiers in Cellular and Infection Microbiology.* 2022, 12: 1813.
- Hu S, et al. Activity of the multikinase inhibitor sorafenib in combination with cytarabine in acute myeloid leukemia. *J Natl Cancer Inst.* 2011 Jun 8;103(11):893-905.
- Thieulent C, Hue E, Sutton G, et al. Identification of antiviral compounds against equid herpesvirus-1 using real-time cell assay screening: efficacy of decitabine and valganciclovir alone or in combination. *Antiviral Research.* 2020: 104931
- Wang B, He B S, Ruan X L, et al. An integrated microfluidics platform with high-throughput single-cell cloning array and concentration gradient generator for efficient cancer drug effect screening. *Military Medical Research.* 2022, 9(1): 1-17.
- Yamauchi H, et al. *Biol Reprod*, 2004, 70(6), 1762-1767.
- Shepshelovich D, et al. Pharmacodynamics of cytarabine induced leucopenia: a retrospective cohort study. *Br J Clin Pharmacol.* 2015 Apr;79(4):685-91.
- Wang B, Pei J, Zhang H, et al. Dihydropyridine-derived calcium channel blocker as a promising anti-hantavirus entry inhibitor. *Interventions for emerging infectious diseases.* 2023, 16648714.
- He S, Li Y, Wang L, et al. DNA methylation landscape reveals GNAS as a decitabine-responsive marker in patients with acute myeloid leukemia. *Neoplasia.* 2024, 49: 100965.
- Thieulent C, Hue E, Sutton G, et al. Identification of antiviral compounds against equid herpesvirus-1 using real-time cell assay screening: efficacy of decitabine and valganciclovir alone or in combination[J]. *Antiviral Research.* 2020: 104931
- Small S H, Perez R E, Beauchamp E M, et al. Targeting SLFN11-Regulated Pathways Restores Chemotherapy Sensitivity in AML. *Blood Neoplasia.* 2024: 100037.
- The TRPV1-PKM2-SREBP1 axis maintains microglial lipid homeostasis in Alzheimer's disease[J]. *Cell Death & Disease*, 2025, 16(1): 14.

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