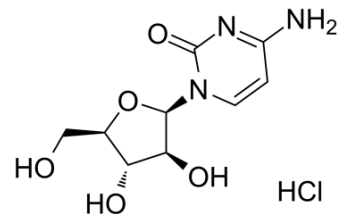


Cytarabine hydrochloride

Cat. No.:	HY-13605A		
CAS No.:	69-74-9		
Molecular Formula:	C ₉ H ₁₄ ClN ₃ O ₅		
Molecular Weight:	279.68		
Target:	DNA/RNA Synthesis; Nucleoside Antimetabolite/Analog; HSV; Autophagy		
Pathway:	Cell Cycle/DNA Damage; Anti-infection; Autophagy		
Storage:	Powder	-20°C	3 years
		4°C	2 years
	In solvent	-80°C	6 months
		-20°C	1 month



BIOLOGICAL ACTIVITY

Description	Cytarabine hydrochloride, a nucleoside analog, causes S phase cell cycle arrest and inhibits DNA polymerase. Cytarabine inhibits DNA synthesis with an IC ₅₀ of 16 nM. Cytarabine hydrochloride has antiviral effects against HSV.
IC₅₀ & Target	IC ₅₀ : 16 nM (DNA synthesis)
In Vitro	<p>Cytarabine is phosphorylated into a triphosphate form (Ara-CTP) involving deoxycytidine kinase (dCK), which competes with dCTP for incorporation into DNA, and then blocks DNA synthesis by inhibiting the function of DNA and RNA polymerases. Cytarabine displays a higher growth inhibitory activity towards wild-type CCRF-CEM cells compared to other acute myelogenous leukemia (AML) cells with IC₅₀ of 16 nM^[1]. Cytarabine apparently induces apoptosis of rat sympathetic neurons at 10 μM, of which 100 μM shows the highest toxicity and kills over 80% of the neurons by 84 hours, involving the release of mitochondrial cytochrome-c and the activation of caspase-3, and the toxicity can be attenuated by p53 knockdown and delayed by bax deletion^[2].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>
In Vivo	<p>Cytarabine (250 mg/kg) also causes placental growth retardation and increases placental trophoblastic cells apoptosis in the placental labyrinth zone of the pregnant Slc:Wistar rats, which increases from 3 hour after the treatment and peaks at 6 hour before returning to control levels at 48 hour, with remarkably enhanced p53 protein, p53 transcriptional target genes such as p21, cyclinG1 and fas and caspase-3 activity^[3]. Cytarabine is highly effective against acute leukaemias, which causes the chCytarabine characteristic G1/S blockage and synchronization, and increases the survival time for leukaemic Brown Norway rats in a weak dose-related fashion indicating that the use of higher dosages of Cytarabine does not contribute to its antileukaemic effectiveness in man^[4].</p> <p>MCE has not independently confirmed the accuracy of these methods. They are for reference only.</p>

PROTOCOL

Animal Administration ^[3]	Pregnant rats are injected intraperitoneally (i.p.) with 250 mg/kg of Cytarabine on Day 13 of gestation (GD13). Under the conditions of this experiment, congenital anomalies and growth retardation are detected at a high rate in perinatal fetuses, although the incidence of fetal death is not markedly increased. At 1, 3, 6, 9, 12, 24, and 48 h after the treatment, six dams each are killed by heart puncture under ether anesthesia, and the placentas are collected. As controls, six pregnant rats are
---	---

injected i.p. with an equivalent volume of PBS on GD13 and killed at the same time point as Cytarabine-treated groups. Of the six dams obtained at each time point, three are used for histopathological analyses and three for reverse transcription-polymerase chain reaction (RT-PCR) analysis.

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

CUSTOMER VALIDATION

- Cell. 2018 Sep 20;175(1):171-185.e25.
- Clin Chem. 2019 Dec;65(12):1522-1531.
- Cell Death Dis. 2021 Jan 5;12(1):20.
- Acta Pharmacol Sin. 2020 May 12.
- J Mol Med (Berl). 2019 Aug;97(8):1183-1193.

See more customer validations on www.MedChemExpress.com

REFERENCES

- [1]. Tobias, S.C. and R.F. Borch, Synthesis and biological evaluation of a cytarabine phosphoramidate prodrug. *Mol Pharm*, 2004. 1(2): p. 112-6.
- [2]. Besirli, C.G., et al. Cytosine arabinoside rapidly activates Bax-dependent apoptosis and a delayed Bax-independent death pathway in sympathetic neurons. *Cell Death Differ*, 2003. 10(9): p. 1045-58.
- [3]. Yamauchi, H., et al., Involvement of p53 in 1-beta-D-arabinofuranosylcytosine-induced trophoblastic cell apoptosis and impaired proliferation in rat placenta. *Biol Reprod*, 2004. 70(6): p. 1762-7.
- [4]. Richel, D.J., et al., Comparison of the antileukaemic activity of 5 aza-2-deoxycytidine and arabinofuranosyl-cytosine in rats with myelocytic leukaemia. *Br J Cancer*, 1988. 58(6): p. 730-3.
- [5]. Shepshelovich D, et al. Pharmacodynamics of cytarabine induced leucopenia: a retrospective cohort study. *Br J Clin Pharmacol*. 2015 Apr;79(4):685-91.
- [6]. Renis HE. Antiviral activity of cytarabine in herpesvirus-infected rats. *Antimicrob Agents Chemother*. 1973 Oct;4(4):439-44.

Caution: Product has not been fully validated for medical applications. For research use only.

Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA