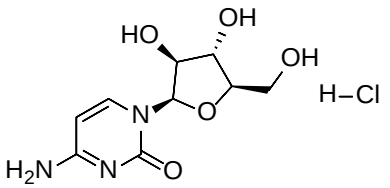
Product data sheet

MedKoo Cat#: 100200 Name: Cytarabine hydrochloride CAS#: 69-74-9 (HCl) Chemical Formula: $C_9H_{14}ClN_3O_5$ Molecular Weight: 279.68	
Product supplied as:	Powder
Purity (by HPLC):	≥ 98%
Shipping conditions	Ambient temperature
Storage conditions:	Powder: -20°C 3 years; 4°C 2 years.
	In solvent: -80°C 3 months; -20°C 2 weeks.

1. Product description:

Cytarabine, also known as MK-8242 and SCH-900242, is an antimetabolite analogue of cytidine with a modified sugar moiety (arabinose instead of ribose). Cytarabine is converted to the triphosphate form within the cell and then competes with cytidine for incorporation into DNA. Because the arabinose sugar sterically hinders the rotation of the molecule within DNA, DNA replication ceases, specifically during the S phase of the cell cycle. This agent also inhibits DNA polymerase, resulting in a decrease in DNA replication and repair.

2. CoA, QC data, SDS, and handling instruction

SDS and handling instruction, CoA with copies of QC data (NMR, HPLC and MS analytical spectra) can be downloaded from the product web page under "QC And Documents" section. Note: copies of analytical spectra may not be available if the product is being supplied by MedKoo partners. Whether the product was made by MedKoo or provided by its partners, the quality is 100% guaranteed.

3. Solubility data

Solvent	Max Conc. mg/mL	Max Conc. mM
DMSO	55.0	196.65
PBS (pH 7.2)	10.0	35.76

4. Stock solution preparation table:

Concentration / Solvent Volume / Mass	1 mg	5 mg	10 mg
1 mM	3.58 mL	17.88 mL	35.76 mL
5 mM	0.72 mL	3.58 mL	7.15 mL
10 mM	0.36 mL	1.79 mL	3.58 mL
50 mM	0.07 mL	0.36 mL	0.72 mL

5. Molarity Calculator, Reconstitution Calculator, Dilution Calculator

Please refer the product web page under section of "Calculator"

6. Recommended literature which reported protocols for in vitro and in vivo study

In vitro study

1. Lech-Maranda E, Korycka A, Robak T. The interaction of gemcitabine and cytarabine on murine leukemias L1210 or P388 and on human normal and leukemic cell growth in vitro. Haematologica. 2000 Jun;85(6):588-94. PMID: 10870114.

In vivo study

1. Lech-Maranda E, Korycka A, Robak T. The interaction of gemcitabine and cytarabine on murine leukemias L1210 or P388 and on human normal and leukemic cell growth in vitro. Haematologica. 2000 Jun;85(6):588-94. PMID: 10870114.

7. Bioactivity

Biological target: Cytarabine hydrochloride is a nucleoside analog that inhibits DNA synthesis with an IC50 of 16 nM.

In vitro activity

In vitro, normal granulocyte-macrophage colony-forming unit (CFU-GM) cells as well as CFU-GM cells obtained from patients with chronic myeloid leukemia (CML) were incubated either with gemcitabine (dFdC) or cytarabine (Ara-C) alone or with adequate concentrations of a combination of these drugs. The in vitro experiments showed that dFdC used together with Ara-C acted additively

on normal as well as CML CFU-GM cells. Furthermore, the drugs used jointly inhibited the growth of colonies formed by CML CFU-GM cells to a significantly higher degree than normal CFU-GM and the differences were statistically significant in the case of the combination of highest concentrations.

Reference: Haematologica. 2000 Jun;85(6):588-94. https://pubmed.ncbi.nlm.nih.gov/10870114/

In vivo activity

In vivo, mice bearing L1210 or P388 leukemia were treated with dFdC and Ara-C. The drugs were administered alone and in combination according to the following schedules: Ara-C and dFdC at the same time, dFdC before Ara-C, and Ara-C before dFdC. The efficacy of the therapy against leukemia (defined as the increase in lifespan, ILS) was assessed as the percentage of the median survival time (MST) of the treated group (T) in relationship to that of the control group (C): ILS=[(MST(C)/MST(T)) -1]x100. The in vivo experiment revealed that in both leukemias tested, combined therapy with dFdC given before Ara-C and dFdC given at the same time with Ara-C were more effective than monotherapy with either dFdC or Ara-C. The other treatment schedule (Ara-C before dFdC) did not significantly prolong the survival time of the treated mice bearing L1210 or P388 leukemia as compared with the treatment with dFdC alone.

Reference: Haematologica. 2000 Jun;85(6):588-94. https://pubmed.ncbi.nlm.nih.gov/10870114/