Zalcitabine

Cat. No.: HY-17392

CAS No.: 7481-89-2

Molecular Formula: $C_9H_{13}N_3O_3$

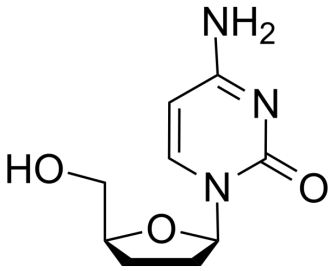
Molecular Weight: 211.22

Target: HIV; Reverse Transcriptase

Pathway: Anti-infection

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 62.5 mg/mL (295.90 mM; Need ultrasonic)

H_2O : ≥ 25 mg/mL (118.36 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	4.7344 mL	23.6720 mL	47.3440 mL
5 mM	0.9469 mL	4.7344 mL	9.4688 mL
10 mM	0.4734 mL	2.3672 mL	4.7344 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.08 mg/mL (9.85 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (9.85 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (9.85 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Zalcitabine is a potent nucleoside analogue reverse transcriptase inhibitor used in the treatment of HIV infection.

IC_{50} & Target

Target: HIV

In Vitro

Zalcitabine is a dideoxynucleoside antiretroviral agent that is phosphorylated to the active metabolite 2',3'-dideoxycytidine

5'-triphosphate (ddCTP) within both uninfected and HIV-infected cells. At therapeutic concentrations, ddCTP inhibits HIV replication by inhibiting the enzyme reverse transcriptase and terminating elongation of the proviral DNA chain[1]. Zalcitabine exhibits the inhibition effect on the cellular uptake of [3H]-PAH in CHO/hOAT1 cells with an IC_{50} value of 1.23 mM. Furthermore, the cellular uptake of zalcitabine increased threefold with the enhancement of hOATI activity in CHO/hOAT1 cells[2].

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

CUSTOMER VALIDATION

- Signal Transduct Target Ther. 2023 Feb 24;8(1):79.
- Clin Cancer Res. 2022 Nov 30;CCR-22-1591.
- Proc Natl Acad Sci U S A. 2022 Oct 25;119(43):e2207280119.
- Int J Antimicrob Agents. 2019 Dec;54(6):814-819.
- Int J Mol Sci. 2023 May 11, 24(10), 8609.

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REFERENCES

[1]. Adkins JC, et al. Zalcitabine. An update of its pharmacodynamic and pharmacokinetic properties and clinical efficacy in the management of HIV infection.Drugs. 1997 Jun;53(6):1054-80

[2]. Jin MJ, et al. Interaction of zalcitabine with human organic anion transporter 1. Pharmazie. 2006 May;61(5):491-2.

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

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