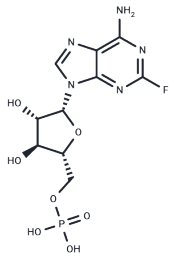
Data Sheet (Cat.No.T6501)

TargetMol

Fludarabine Phosphate

Chemical Properties



CAS No. : 75607-67-9

Formula: C10H13FN5O7P

Molecular Weight: 365.21

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	Fludarabine Phosphate (NSC 312887 Phosphate) is the phosphate salt of a fluorinated nucleotide antimetabolite analog of the antiviral agent vidarabine (ara-A) with antineoplastic activity. Fludarabine phosphate is rapidly dephosphorylated to 2-fluoro-ara-A and then phosphorylated intracellularly by deoxycytidine kinase to the active triphosphate, 2-fluoro-ara-ATP. This metabolite may inhibit DNA polymerase alpha, ribonucleotide reductase, and DNA primase, thereby interrupting DNA synthesis and inhibiting tumor cell growth.
Targets(IC50)	Apoptosis,Nucleoside Antimetabolite/Analog,DNA/RNA Synthesis
In vitro	The maximum tolerable dose of Fludarabine Phosphate is determined to be 234 mg/kg, with its LD50 (lethal dose 50%) for mice being 375 mg/kg. Notably, Fludarabine Phosphate exhibits toxicity in tumor-free mice. However, in mice carrying P388 leukemia, treatment with Fludarabine Phosphate leads to a reduction in the number of surviving cells geared towards therapy, significantly enhancing the lifespan by 110% and increasing the average survival time.
In vivo	Fludarabine Phosphate effectively inhibits DNA polymerase α/δ (Ki: 1.1/1.3 μM), demonstrating potent inhibitory activity in vitro. It is capable of being excised from bound DNA by DNA polymerase δ. Competitively binding with deoxyadenosine triphosphate at the A site for DNA chain elongation, Fludarabine Phosphate leads to the termination of DNA strand extension. Notably, human DNA polymerase α is more adept at incorporating Fludarabine Phosphate into DNA than polymerase δ.
Cell Research	Cells are incubated with Fludarabine Phosphate for 5 hr and washed twice with drug-free warm medium. 800 cells are mixed with 1.3 mL of 0.25% soft agar in Dulbecco's medium supplemented with 20% fetal bovine serum (pre-warmed to 37 ℃) and incubated in a tissue culture dish for 10 days (humidified 5% CO2 , 37 ℃). At the end of the incubation period, colonies of more than 40 cells are scored under a microscope. The cytotoxic effect of the drugs is expressed as a percentage of survival relative to that of untreated control cells.(Only for Reference)

Solubility Information

Solubility	DMSO: 35 mg/mL (95.84 mM),Sonication is recommended. Ethanol: < 1 mg/mL (insoluble or slightly soluble),

Solubility	H2O: 2 mg/mL (5.48 mM),Heating 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: 2 mg/mL (5.48 mM),Sonication is recommended. *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.*

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.7382 mL	13.6908 mL	27.3815 mL
5 mM	0.5476 mL	2.7382 mL	5.4763 mL
10 mM	0.2738 mL	1.3691 mL	2.7382 mL
50 mM	0.0548 mL	0.2738 mL	0.5476 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

Huang P, et al, J Biol Chem, 1990, 265(27), 16617-16625.
Umbach GE, et al. Invest New Drugs, 1984, 2(3), 263-265.
Avramis VI, et al. Cancer Res, 1982, 42(7), 2587-2591.

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