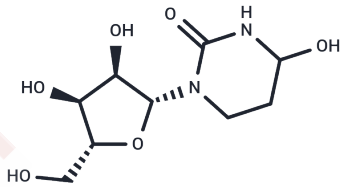
Data Sheet (Cat.No.T17059)

TargetMol

Tetrahydrouridine

Chemical Properties



CAS No. : 18771-50-1

Formula: C9H16N2O6

Molecular Weight: 248.23

Storage: Store at low temperature
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	Tetrahydrouridine (NSC-112907; THU) is a multidrug resistance modulator. It can be used in cancer treatment to make tumor cells more sensitive to radiation therapy. THU is a competitive cytidine deaminase(CDA) inhibitor that inhibits deamination in the catabolism of cytotoxic deoxycytidine analogs such as ara-C and Gemcitabine.
Targets(IC50)	Others,DNA Methyltransferase,DNA/RNA Synthesis
In vitro	To test how Tetrahydrouridine affects the Gemcitabine-mediated anti-neoplastic effect on pancreatic and lung carcinoma cells, a combination therapy is performed. As expected, high CDA expression in BxPC-3 and H441 results in improved Gemcitabine sensitivity after a 100 μM Tetrahydrouridine treatment. The sensitivity of BxPC-3 and H441 cell lines increases by as much as approximately 2.1 and 4.4 fold respectively. On the other hand, MIAPaCa-2 and H1299 cells unexpectedly become more sensitive to Gemcitabine with low CDA expression. MIAPaCa-2 and H1299 cells show a change in an IC50?of 2.2 and 2.3 fold respectively. However, Panc-1 and H322 cells do not show significant changes in drug sensitivity. These data suggested that Tetrahydrouridine can sensitize some pancreatic and lung carcinoma cells to Gemcitabine-induced cell death regardless of CDA expression levels. Tetrahydrouridine inhibits S-phase without apoptosis.
In vivo	Tetrahydrouridine (167 mg/kg) followed by DAC (1.0 mg/kg) results in death in one male and eight females. Animals surviving to scheduled termination are generally asymptomatic with no treatment related effects observed in body weights, food consumption, clinical chemistry and urinalysis for a treatment up to 1.0 mg/kg DAC in combination with 167 mg/kg Tetrahydrouridine in animals.

Solubility Information

Solubility	DMSO: 10 mg/mL (40.29 mM),Sonication is recommended. H2O: Insoluble, (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	4.0285 mL	20.1426 mL	40.2852 mL
5 mM	0.8057 mL	4.0285 mL	8.057 mL
10 mM	0.4029 mL	2.0143 mL	4.0285 mL
50 mM	0.0806 mL	0.4029 mL	0.8057 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

Funamizu N, et al. Tetrahydrouridine inhibits cell proliferation through cell cycle regulation regardless of cytidine deaminase expression levels. PLoS One. 2012;7(5):e37424.
Terse P, et al. Subchronic oral toxicity study of decitabine in combination with tetrahydrouridine in CD-1 mice. Int J Toxicol. 2014 Mar-Apr;33(2):75-85.
Newman EM, Morgan RJ, Kummar S, Beumer JH, Blanchard MS, Ruel C, El-Khoueiry AB, Carroll MI, Hou JM, Li C, Lenz HJ, Eiseman JL, Doroshow JH. A phase I, pharmacokinetic, and pharmacodynamic evaluation of the DNA methyltransferase inhibitor 5-fluoro-2'-deoxycytidine, administered with tetrahydrouridine. Cancer Chemother Pharmacol. 2015 Mar;75(3):537-46. doi: 10.1007/s00280-014-2674-7. Epub 2015 Jan 8. PubMed PMID: 25567350; PubMed Central PMCID: PMC4344391.
Terse P, Engelke K, Chan K, Ling Y, Sharpnack D, Saunthararajah Y, Covey JM. Subchronic oral toxicity study of decitabine in combination with tetrahydrouridine in CD-1 mice. Int J Toxicol. 2014 Mar-Apr;33(2):75-85. doi: 10.1177/1091581814524994. Epub 2014 Mar 17. PubMed PMID: 24639139; PubMed Central PMCID: PMC4001115.