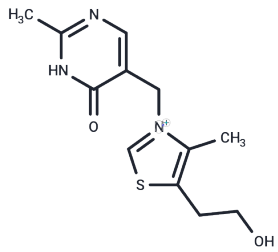
Data Sheet (Cat.No.T12354)

TargetMol

Oxythiamine

Chemical Properties



CAS No. : 136-16-3

Formula: C12H16N3O2S

Molecular Weight: 266.34

Storage: Keep away from moisture
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	Oxythiamine (Hydroxythiamin) is an antivitamin of thiamine and a transketolase (TK) inhibitor. Oxythiamine inhibits cancer cell proliferation and induces cell cycle arrest. Oxythiamine has potential anticancer activity, inhibits non-oxidative synthesis of ribose, and induces apoptosis.
Targets(IC50)	Apoptosis,Endogenous Metabolite,Transketolase
In vitro	Oxythiamine for MIA PaCa-2 cells 5-320 μM for 2 days IC50 is 14.95 μM MTT, MIA PaCa-2 cells concentrations of Oxythiamine (0 μM, 5 μM, 50 μM and 500 μM) for 48 hours two-dimensional gel electrophoresis (2DE). Oxythiamine altered protein expression in a dose dependent manner.[1] The MIC and MFC values of Oxythiamine were in the range 0.08 × 103 to 10 × 103 mg/L. [2] A549 cells were co-cultured with Oxythiamine (from 0.1 to 100 μM) for 6–12 h CCK-8 assay Oxythiamine contributes to a significant reduction of A549 cell viability of 11.7%, 23.6%, and 28.2% at 12, 24, and 48 h. [3] Oxythiamine arrests the cell growth in G1 phase of cell cycle. [3] Oxythiamine inhibits the growth of A549 cells by initially slowing-down cell cycle and by leading to apoptosis. [3]
In vivo	s.c. injection C57BL/6 mice with LLC cells and supplemented the mice with a low- or a high-dose of Oxythiamine (250 or 500 mg/kg BW) daily for 5 wk. During the 5-wk period, Oxythiamine supplementation decreased plasma MMP-2 activity in a dose-dependent manner, and this effect was significant after 4 wk of tumor cell implantation. [4]

Solubility Information

Solubility	DMSO: 40 mg/mL (150.18 mM),Sonication 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 (7.51 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*

In vivo Formulation	*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	3.7546 mL	18.773 mL	37.546 mL
5 mM	0.7509 mL	3.7546 mL	7.5092 mL
10 mM	0.3755 mL	1.8773 mL	3.7546 mL
50 mM	0.0751 mL	0.3755 mL	0.7509 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

Wang J, et al. Inhibition of transketolase by oxythiamine altered dynamics of protein signals in pancreatic cancer cells. Exp Hematol Oncol. 2013 Jul 27;2:18.
Siemieniuk M et al. Oxythiamine improves antifungal activity of ketoconazole evaluated in canine Malassezia pachydermatis strains. Vet Dermatol. 2018 Dec;29(6):476-e160.
Bai L, Zhu HL. A dose- and time-dependent effect of oxythiamine on cell growth inhibition in non-small cell lung cancer. Cogn Neurodyn. 2022 Jun;16(3):633-641.
Yang CM, et al. The in vitro and in vivo anti-metastatic efficacy of oxythiamine and the possible mechanisms of action. Clin Exp Metastasis. 2010 May;27(5):341-9.