Thiamine disulfide

Cat. No.: HY-B2224

CAS No.: 67-16-3

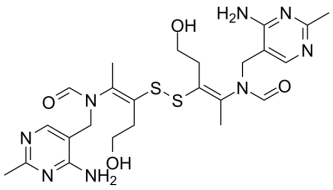
Molecular Formula: $C_{24}H_{34}N_8O_4S_2$

Molecular Weight: 562.71

Target: Endogenous Metabolite; HIV

Pathway: Metabolic Enzyme/Protease; Anti-infection

Storage: 4°C, protect from light, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light, stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 250 mg/mL (444.28 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	1.7771 mL	8.8856 mL	17.7711 mL
	5 mM	0.3554 mL	1.7771 mL	3.5542 mL
	10 mM	0.1777 mL	0.8886 mL	1.7771 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 (3.70 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (3.70 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (3.70 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Thiamine disulfide, a vitamin B1 derivative, is an oxidized dimer of Thiamine. Thiamine disulfide is a potent HIV-1 inhibitor. Thiamine disulfide significantly depresses HIV-1 transactivator (Tat) activity[1][2].

IC_{50} & Target

HIV-1

In Vitro

Thiamine disulfide markedly inhibits production of progeny HIV-1 in acute and chronic HIV-1-infected CEM at nontoxic concentrations of 500-1000 μM. Thiamine disulfide (500 μM) blocks 99.7% of HIV-1 production after 96 hours culture in acute HIV-1 (LAV-1) infection, whereas it inhibits 90-98% of HIV-1 production in chronic-infected cells (CEM/LAV-1, H9/MN, and

Molt-4/IIIB)[1].

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

REFERENCES

[1]. S Shoji, et al. Thiamine disulfide as a potent inhibitor of human immunodeficiency virus (type-1) production. Biochem Biophys Res Commun. 1994 Nov 30;205(1):967-75.

[2]. Y Komata, et al. In vitro percutaneous absorption of thiamine disulfide from a mixture of propylene glycol and fatty acid. J Pharm Sci. 1992 Aug;81(8):744-6.

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