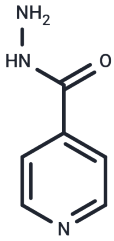
Data Sheet (Cat.No.T0972)

TargetMol

Isoniazid

Chemical Properties



CAS No. : 54-85-3

Formula: C6H7N3O

Molecular Weight: 137.14

Storage: Keep away from direct sunlight
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	Isoniazid (Isonicotinic hydrazide) is an antibacterial agent used primarily as a tuberculostatic.
Targets(IC50)	Mitophagy,Antibacterial,Antibiotic,Autophagy,Dehydrogenase
In vitro	Isoniazid is a prodrug that requires activation by the mycobacterial catalase-peroxidase enzyme (KatG) to an active form that then exerts a lethal effect on an intracellular target or targets. [1] Isoniazid upregulates the expression of an operon containing five FAS II components, including kasA and acpM. Isoniazid results in the accumulation of ACP-bound lipid precursors to mycolic acids that are 26 carbons long and fully saturated. [2] Isoniazid enters the mycobacterial cell by passive diffusion. Isoniazid itself is not toxic to the bacterial cell, but acts as a prodrug and is activated by the mycobacterial enzyme KatG, a multifunctional catalase-peroxidase that has other activities, including peroxynitritase and NADH oxidase. Isoniazid inhibits cell wall lipid synthesis, coupled with the findings that inhibitory INH adducts of NAD+/NADP+ are formed from the isonicotinoyl radical, leading the field away from this area. [3] Isoniazid induces a concentration-dependent (0-40 mM) cytotoxic effect in day-1 treated HepG2 cells and not significantly affected by decreases in intracellular GSH concentrations. [4]
In vivo	Isoniazid increases CYP2E1 protein, and the 6-hydroxychlorzoxazone formation rate is increased by 2.7 and 2.2-fold in liver and kidney, respectively. Isoniazid decreases liver and kidney 20-HETE content to 34% and 15.6% of control, respectively, without significantly altering tissue 19-HETE concentration. [5]

Solubility Information

Solubility	DMSO: 60.63 mg/mL (442.1 mM),Sonication is recommended. H2O: 25 mg/mL (182.3 mM),Sonication is recommended. Ethanol: 26 mg/mL (189.59 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 (14.58 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	7.2918 mL	36.4591 mL	72.9182 mL
5 mM	1.4584 mL	7.2918 mL	14.5836 mL
10 mM	0.7292 mL	3.6459 mL	7.2918 mL
50 mM	0.1458 mL	0.7292 mL	1.4584 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

Mdluli K, et al. Science, 1998, 280(5369), 1607-1610.
Slayden RA, et al. Mol Microbiol, 2000, 38(3), 514-525.
Timmins GS, et al. Mol Microbiol, 2006, 62(5), 1220-1227.
Nicod L, et al. Hum Exp Toxicol, 1997, 16(1), 28-34.
Poloyac SM, et al. Drug Metab Dispos, 2004, 32(7), 727-733.