Fomepizole

Cat. No.: HY-B0876

CAS No.: 7554-65-6

Molecular Formula: $C_4H_6N_2$

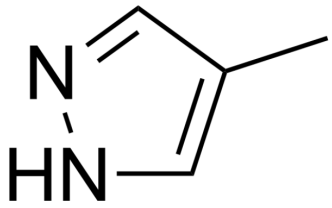
Molecular Weight: 82.1

Target: Cytochrome P450

Pathway: Metabolic Enzyme/Protease

Storage:

Pure form	-20°C	3 years
	4°C	2 years
In solvent	-80°C	6 months
	-20°C	1 month



SOLVENT & SOLUBILITY

In Vitro

H_2O : 100 mg/mL (1218.03 mM; Need ultrasonic)

DMSO : ≥ 100 mg/mL (1218.03 mM)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	12.1803 mL	60.9013 mL	121.8027 mL
5 mM	2.4361 mL	12.1803 mL	24.3605 mL
10 mM	1.2180 mL	6.0901 mL	12.1803 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 140 mg/mL (1705.24 mM); Clear solution; Need ultrasonic
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 2.5 mg/mL (30.45 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (30.45 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (30.45 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Fomepizole (4-Methylpyrazole) is a potent cytochrome P450 (CYP2E1) inhibitor. Fomepizole is a competitive inhibitor of the enzyme alcohol dehydrogenase. Fomepizole blocks further conversion of methanol and ethylene glycol to toxic metabolites. Fomepizole has the potential for an antidote for ethylene glycol or methanol poisoning[1][2][3].

IC_{50} & Target	CYP2E1
In Vivo	Pretreatment with Fomepizole (4-Methylpyrazole; 25 mg/kg; IP) prolongs ethanol neurobehavioral toxicity in CD-1 mice[4] MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male CD-1 mice weighing 18-25 g[4]
Dosage:	25 mg/kg
Administration:	IP; single dose
Result:	Decreased the dose of ethanol (1-5 g/kg; IP) at which 50% of the animals failed a particular outcome test (toxic dose 50; TD50).

CUSTOMER VALIDATION

- Chemosphere. 2021, 131347.
- Plant Physiol. 2023 Mar 29;kiad198.
- Food Chem Toxicol. 2022 Sep 15;113431.

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REFERENCES

[1]. Casavant MJ. Fomepizole in the treatment of poisoning. Pediatrics. 2001 Jan;107(1):170.

[2]. Lepik KJ, et al. Adverse drug events associated with the antidotes for methanol and ethylene glycol poisoning: a comparison of ethanol and fomepizole. Ann Emerg Med. 2009 Apr;53(4):439-450.e10.

[3]. Garrett Rampon, et al. Use of fomepizole as an adjunct in the treatment of acetaminophen overdose: a case series. Toxicology Communications. Volume 4, 2020 - Issue 1.

[4]. Páez AM, et al. Effects of 4-methylpyrazole on ethanol neurobehavioral toxicity in CD-1 mice. Acad Emerg Med. 2004 Aug;11(8):820-6.

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