Allopurinol

Cat. No.: HY-B0219

CAS No.: 315-30-0

Molecular Formula: $C_5H_4N_4O$

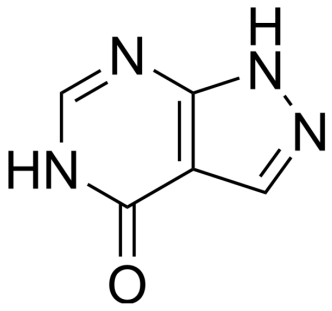
Molecular Weight: 136.11

Target: Xanthine Oxidase

Pathway: Metabolic Enzyme/Protease

Storage:

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



SOLVENT & SOLUBILITY

In Vitro

DMSO : 14 mg/mL (102.86 mM; Need ultrasonic and warming)

H_2O : 1 mg/mL (7.35 mM; ultrasonic and adjust pH to 11 with NaOH)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	7.3470 mL	36.7350 mL	73.4700 mL
5 mM	1.4694 mL	7.3470 mL	14.6940 mL
10 mM	0.7347 mL	3.6735 mL	7.3470 mL

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

In Vivo

1. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 3.33 mg/mL (24.47 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 3.33 mg/mL (24.47 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.61 mg/mL (4.48 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Allopurinol is a potent and orally active xanthine oxidase inhibitor with an IC_{50} value of 0.2-50 μM. Allopurinol can be used in the research of hyperuricemia and gout. Allopurinol decreases the expression of HIF-1α and HIF-2α protein. Allopurinol shows anti-depressant and anti-nociception activity. Anti-leishmanial effect[1][2][3][4][5].

In Vitro

Allopurinol (0, 10, 100, 1000 μg/ml; 17 h) decreases the expression of HIF-1α and HIF-2α protein in HFF and HUVEC cells[5].
Allopurinol (0, 10, 100, 1000 μg/ml; 24 h) reduces angiogenesis traits of HUVEC cells[5].

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

Western Blot Analysis[5]

Cell Line:	HFF, HUVEC cells
Concentration:	0, 10, 100, 1000 μg/ml
Incubation Time:	17 h
Result:	Reduced HIF-1α and HIF-2α protein expression in a dose dependent manner.

In Vivo

Allopurinol (39 mg/kg; p.o.; daily for 21 successive days) shows anti-depressant activity in mouse[3].
Allopurinol (10-400 mg/kg; i.p.) induces anti-nociception activity in mouse[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	20-30 g, male Swiss Albino mice[3]
Dosage:	39 mg/kg
Administration:	P.o.; daily for 21 successive days
Result:	Reduced the immobility time in the FST with the immobility time of 129.8±10.5 s.

Animal Model:	30-40 g, male adult Swiss albino mice[4]
Dosage:	10, 50, 100, 200, 400 mg/kg
Administration:	I.p.
Result:	Produced dose-dependent anti-nociception in the tail-flick, hot-plate.

CUSTOMER VALIDATION

- Commun Biol. 2022 Jul 22;5(1):726.
- J Biol Chem. 2021 Sep 3;101166.
- Pharmaceuticals. 2023, 16(3), 361.
- Cytokine. 2023 Jan 9;163:156120.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Karve AV, et al. Evaluation of effect of allopurinol and febuxostat in behavioral model of depression in mice. Indian J Pharmacol. 2013 May-Jun;45(3):244-7.

[2]. Schmidt AP, et al. Anti-nociceptive properties of the xanthine oxidase inhibitor allopurinol in mice: role of A1 adenosine receptors. Br J Pharmacol. 2009 Jan;156(1):163-72.

[3]. Sun Y, et al. Dose-dependent effects of allopurinol on human foreskin fibroblast cells and human umbilical vein endothelial cells under hypoxia. PLoS One. 2015 Apr 1;10(4):e0123649.

[4]. Pacher P, et al. Therapeutic effects of xanthine oxidase inhibitors: renaissance half a century after the discovery of allopurinol. Pharmacol Rev. 2006 Mar;58(1):87-114.

[5]. Pfaller MA, et al. Antileishmanial effect of allopurinol. Antimicrob Agents Chemother. 1974;5(5):469-472.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com
Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA