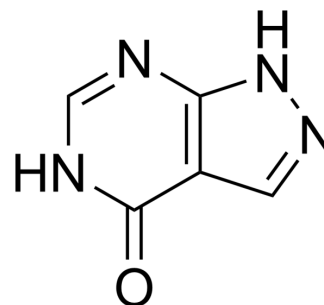


## Allopurinol

<b>Cat. No.:</b>	HY-B0219		
<b>CAS No.:</b>	315-30-0		
<b>Molecular Formula:</b>	C <sub>5</sub> H <sub>4</sub> N <sub>4</sub> O		
<b>Molecular Weight:</b>	136.11		
<b>Target:</b>	Xanthine Oxidase		
<b>Pathway:</b>	Metabolic Enzyme/Protease		
<b>Storage:</b>	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 (102.85 mM; Need ultrasonic and warming)  
 H<sub>2</sub>O : 1 mg/mL (7.35 mM; ultrasonic and adjust pH to 11 with NaOH)

Preparing Stock Solutions	Solvent		1 mg	5 mg	10 mg
	Concentration	Mass			
	1 mM		7.3468 mL	36.7339 mL	73.4678 mL
	5 mM		1.4694 mL	7.3468 mL	14.6936 mL
	10 mM		0.7347 mL	3.6734 mL	7.3468 mL

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

#### In Vivo

- Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)  
Solubility: ≥ 3.33 mg/mL (24.46 mM); Clear solution
- Add each solvent one by one: 10% DMSO >> 90% corn oil  
Solubility: ≥ 3.33 mg/mL (24.46 mM); Clear solution
- 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<sub>50</sub> 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<sup>[1][2][3][4][5]</sup>.

#### 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<sup>[5]</sup>. Allopurinol (0, 10, 100, 1000 μg/ml; 24 h) reduces angiogenesis traits of HUVEC cells<sup>[5]</sup>.

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

#### Western Blot Analysis<sup>[5]</sup>

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<sup>[3]</sup>.

Allopurinol (10-400 mg/kg; i.p.) induces anti-nociception activity in mouse<sup>[4]</sup>.

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

Animal Model:	20-30 g, male Swiss Albino mice <sup>[3]</sup>
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 <sup>[4]</sup>
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

- Adv Sci (Weinh). 2024 Sep 3:e2400684.
- Cell Rep Med. 2024 Aug 20;5(8):101690.
- Biomed Pharmacother. 2024 Jun 15:177:116859.
- Commun Biol. 2022 Jul 22;5(1):726.
- J Biol Chem. 2021 Sep 3;101166.

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## 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.

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[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.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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