Ketoprofen

Cat. No.: HY-B0227

CAS No.: 22071-15-4

Molecular Formula: $C_{16}H_{14}O_3$

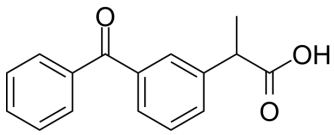
Molecular Weight: 254.28

Target: COX

Pathway: Immunology/Inflammation

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : ≥ 100 mg/mL (393.27 mM)

H_2O : < 0.1 mg/mL (ultrasonic) (insoluble)

* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Concentration \ Solvent, Mass	1 mg	5 mg	10 mg
1 mM	3.9327 mL	19.6634 mL	39.3267 mL
5 mM	0.7865 mL	3.9327 mL	7.8653 mL
10 mM	0.3933 mL	1.9663 mL	3.9327 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: ≥ 2.5 mg/mL (9.83 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (9.83 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.83 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Ketoprofen (RP-19583) is a non-steroidal anti-inflammatory agent. Ketoprofen can inhibits the activity of cyclooxygenase with IC_{50} values of 2 nM (COX-1) and 26 nM (COX-2). which is potential in the research of inflammation, immunology, and metabolic disease such as obesity[1][2][3].

IC_{50} & Target	COX-1	COX-2

	2 nM (IC_{50}, in human blood monocytes)	26 nM (IC_{50}, in human blood monocytes)

In Vitro

Ketoprofen inhibits COX in LPS-stimulated monocytes isolated from human blood, with IC_{50} values of 2 nM (COX-1) and 26 nM (COX-2)[1].
Ketoprofen (2.5 mg /mL, 3-24h) decreases the mRNA level of immune factors (TNFα, IL-8, SAA and COX-2) and PTGES in LPS-stimulated bovine mammary epithelial cells[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

RT-PCR[3]

Cell Line:	LPS (0.2 μg/mL)-stimulated bovine mammary epithelial cells
Concentration:	2.5 mg /mL
Incubation Time:	3, 6, 24 h
Result:	Decreased the mRNA level of TNFα, IL-8, SAA, COX-2 and PTGES.

In Vivo

Ketoprofen (Oral administration, 10 mg/kg, three times a week for 10 weeks, HFD-induced obese C57BL/6 mice) decreases in relative body weight (15.41%), the iWAT mass (approximately 41%), and leptin (58.68%) and resistin (12.88%)[2].
Ketoprofen (50 mg/kg, LPS-treated dairy cows) lowers the increase of somatic cell count (SCC), serum albumin (SA), IgG and lactate dehydrogenase (LDH) activity in milk induced by LPS[3].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	HFD-induced obese C57BL/6 mice[2]
Dosage:	10 mg/kg
Administration:	Oral administration, three times a week for 10 weeks
Result:	Decreased in relative body weight, the iWAT mass, and the level of leptin and resistin.

Animal Model:	LPS (0.2 μg/mL)-treated dairy cows [3]
Dosage:	50 mg/kg
Administration:	Injection (Milk samples were taken every 30 min until 6 and 9 h)
Result:	Lowered the increase of somatic cell count (SCC), serum albumin (SA), IgG and lactate dehydrogenase (LDH) activity in milk.

CUSTOMER VALIDATION

- Chemosphere. 2019 Jun;225:378-387.
- Eur J Pharm Sci. 2023 Jul 30;189:106550.
- J Neurotrauma. 2022 Sep 15.

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REFERENCES

[1]. Palomer A, et al. Structure-based design of cyclooxygenase-2 selectivity into ketoprofen. Bioorg Med Chem Lett. 2002 Feb 25;12(4):533-7.

[2]. NamHyeon Kang Ketoprofen alleviates diet-induced obesity and promotes white fat browning in mice via the activation of COX-2 through mTORC1-p38 signaling pathway. Pflugers Arch. 2020 May;472(5):583-596.

[3]. Denisa Dan, et al. Ketoprofen affects the mammary immune response in dairy cows in vivo and in vitro. J Dairy Sci. 2018 Dec;101(12):11321-11329.

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