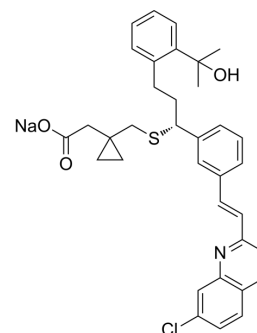


## Montelukast sodium

<b>Cat. No.:</b>	HY-13315
<b>CAS No.:</b>	151767-02-1
<b>Molecular Formula:</b>	C <sub>35</sub> H <sub>35</sub> ClNNaO <sub>3</sub> S
<b>Molecular Weight:</b>	608.17
<b>Target:</b>	Leukotriene Receptor
<b>Pathway:</b>	GPCR/G Protein
<b>Storage:</b>	4°C, sealed storage, away from moisture * In solvent : -80°C, 2 years; -20°C, 1 year (sealed storage, away from moisture)



### SOLVENT & SOLUBILITY

#### In Vitro

H<sub>2</sub>O : ≥ 50 mg/mL (82.21 mM)  
 DMSO : 50 mg/mL (82.21 mM; Need ultrasonic)  
 \* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions	Solvent Concentration	Mass	1 mg	5 mg	10 mg
	1 mM		1.6443 mL	8.2214 mL	16.4428 mL
	5 mM		0.3289 mL	1.6443 mL	3.2886 mL
	10 mM		0.1644 mL	0.8221 mL	1.6443 mL

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

#### In Vivo

1. Add each solvent one by one: PBS  
 Solubility: 1.25 mg/mL (2.06 mM); Suspended solution; Need ultrasonic

### BIOLOGICAL ACTIVITY

#### Description

Montelukast sodium (MK0476) is a potent, selective and orally active antagonist of cysteinyl leukotriene receptor 1 (CysLT<sub>1</sub>). Montelukast sodium can be used for the research of asthma and liver injury. Montelukast sodium also has an antioxidant effect in intestinal ischemia-reperfusion injury, and could reduce cardiac damage. Montelukast sodium decreases eosinophil infiltration into the asthmatic airways. Montelukast sodium can also be used for COVID-19 research<sup>[1][2][3][4]</sup>.

#### IC<sub>50</sub> & Target

CysLT<sub>1</sub>

#### In Vitro

Montelukast (5 μM; 1 h) inhibits APAP (Acetaminophen) (HY-66005)-induced cell damage<sup>[1]</sup>.  
 Montelukast (0.01-10 μM; 30 min) diminishes the 5-oxo-EET<sub>2</sub>-induced cell migration and modulates the activation of the plasmin-plasminogen system<sup>[3]</sup>.  
 Montelukast (10 μM; 18 h) modulates the activation of MMP-9<sup>[3]</sup>.  
 MCE has not independently confirmed the accuracy of these methods. They are for reference only.

### Cell Migration Assay <sup>[3]</sup>

Cell Line:	Eosinophils
Concentration:	0.01-10 $\mu$ M
Incubation Time:	30 min
Result:	Diminished the 5-oxo-EETE-induced cell migration.

### Western Blot Analysis<sup>[3]</sup>

Cell Line:	Eosinophils
Concentration:	10 $\mu$ M
Incubation Time:	18 h
Result:	Reduced the 5-oxo-EETE-boosted MMP-9 secretion.

### In Vivo

Montelukast (3 mg/kg; oral gavage) protects against APAP-induced hepatotoxicity in mice<sup>[1]</sup>.  
Montelukast (1 mg/kg; miniosmotic pump administration) reduces the airway remodeling changes observed in OVA-treated mice and blocks the actions of cysteinyl leukotrienes (LT) C4, D4, and E4 mediated by the CysLT1 receptor<sup>[2]</sup>.  
Montelukast (1 mg/kg; miniosmotic pump administration) reduces the elevated levels of IL-4 and IL-13 found in the BAL fluid of OVA-treated mice<sup>[2]</sup>.  
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	C57BL/6J mice (8-week-old; 22-25 g) are induced acute hepatic injury <sup>[1]</sup>
Dosage:	3 mg/kg
Administration:	Oral gavage 1 h after saline or APAP administration
Result:	Decreased serum levels of alanine transaminase (ALT) and aspartate aminotransferase (AST), and alleviated liver damage.

## CUSTOMER VALIDATION

- J Cachexia Sarcopenia Muscle. 2022 Jun 9.
- Artif Cell Nanomed B. 2019 Dec;47(1):4234-4239.
- Eur J Pharmacol. 2022 May 15;923:174892.
- Naunyn Schmiedebergs Arch Pharmacol. 2023 Feb 27.
- Patent. US20230404992A1.

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## REFERENCES

- [1]. Langlois A, et al. Montelukast regulates eosinophil protease activity through a leukotriene-independent mechanism. J Allergy Clin Immunol. 2006;118(1):113-119.
- [2]. Khan AR, et al. Montelukast in hospitalized patients diagnosed with COVID-19. J Asthma. 2022 Apr;59(4):780-786.

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[3]. Pu S, et, al. Montelukast Prevents Mice Against Acetaminophen-Induced Liver Injury. Front Pharmacol. 2019 Sep 18; 10:1070.

[4]. William RHJ, et, al. A role for cysteinyl leukotrienes in airway remodeling in a mouse asthma model. Am J Respir Crit Care Med. 2002 Jan 1; 165(1): 108-16.

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

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