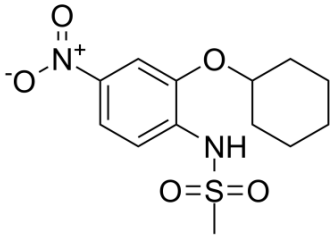
NS-398

Cat. No.:	HY-13913
CAS No.:	123653-11-2
Molecular Formula:	$C_{13}H_{18}N_2O_5S$
Molecular Weight:	314.36
Target:	COX
Pathway:	Immunology/Inflammation
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 : 9 mg/mL (**28.63 mM;** Need ultrasonic and warming)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	3.1811 mL	15.9053 mL	31.8107 mL
	5 mM	0.6362 mL	3.1811 mL	6.3621 mL
	10 mM	0.3181 mL	1.5905 mL	3.1811 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: 2.5 mg/mL (7.95 mM); Suspended solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

NS-398 is a non-steroidal an-inflammatory agent with analgesic and antipyretic effects, and selectively inhibits prostaglandin G/H synthase 2/cyclooxygenase 2 (**COX-2**) activity, with an **IC_{50}** of 3.8 μM, and has no effect on COX-1 at 100 μM.

IC_{50} & Target

COX-2
3.8 μM (IC_{50})

In Vitro

NS-398 is a non-steroidal an-inflammatory agent, selectively inhibits prostaglandin G/H synthase/cyclooxygenase (COX-2) activity, with an IC_{50} of 3.8 μM, and has no effect on COX-1 at 100 μM[1]. NS-398 weakly inhibits PG endoperoxide synthase activity from sheep seminal vesicle microsomes (IC_{50}, 11 μM)[2].

In Vivo	NS-398 (0.5-10 mg/kg, p.o.) dose-dependently inhibits paw edema in rats, with an ED_{30} of 1.14 mg/kg, shows therapeutic effects on adjuvant arthritis (ED_{30}, 4.69 mg/kg), exhibits dose-dependent analgesic activity (ED_{50}, 1.65 mg/kg), and has antipyretic effect (ED_{50}, 1.84 mg/kg) in rats. In mice, NS-398 suppresses writhing reactions induced by acetic acid with an ED_{50} of 8.2 mg/kg[2].

PROTOCOL

Animal Administration [2]

Mice[2]

Briefly, **male ddy mice** weighing about 30 g are used. The writhing syndrome is induced by injecting 0.75% of acetic acid, intraperitoneally. Ten minutes later, the number of writhings are counted for the next 10 min. **NS-398** is administered **orally** 30 min prior to the injection. The analgesic effect is expressed as % of inhibition, compared with the vehicle-treated control[2].

Rats[2]

Briefly, **male Lewis rats** weighing about 160 g are used. Arthritis is induced by injecting 0.1 mL of 0.7% Mycobacterium tubercu-losis-liquid paraffin into the left hind paw. On day 15, the rats are grouped according to the degree of secondary lesions in the right hind paw. **NS-398** is administered **orally once daily** from **days 15 to 18**. Foot volume is measured on day 19. Relative edema volume (REV) is calculated for each animal[2].

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

CUSTOMER VALIDATION

- **EBioMedicine**. 2019 Jul;45:341-350.
- **Front Microbiol**. 20 May 2020.
- **Mol Med Rep**. 2019 Aug 21.

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REFERENCES

[1]. Futaki N, et al. NS-398, a new anti-inflammatory agent, selectively inhibits prostaglandin G/H synthase/cyclooxygenase (COX-2) activity in vitro. Prostaglandins. 1994 Jan;47(1):55-9.

[2]. Futaki N, et al. NS-398, a novel non-steroidal anti-inflammatory drug with potent analgesic and antipyretic effects, which causes minimal stomach lesions. Gen Pharmacol. 1993 Jan;24(1):105-10.

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