

Product Data Sheet

Product Name: NS 398
Cat. No.: GC12241

Chemical Properties

Cas. No. 123653-11-2

Chemical Name N-(2-(cyclohexyloxy)-4-nitrophenyl)methanesulfonamide

SMILES O=S(NC(C(OC1CCCCC1)=C2)=CC=C2[N+](O-)=O)(C)=O

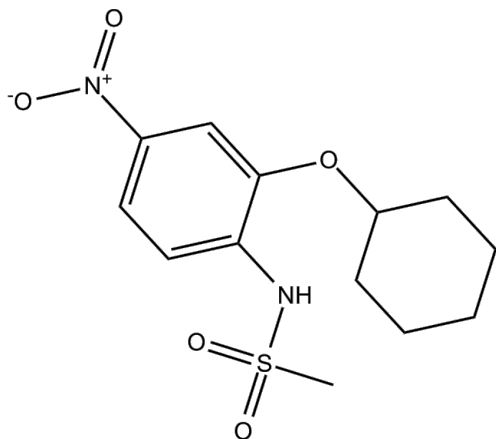
Formula $C_{13}H_{18}N_2O_5S$ M.Wt 314.36

Solubility $\geq 31.4\text{mg/mL}$ in DMSO Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37°C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

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

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Animal experiment: 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 tuberculosis-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].

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.

Background

NS 398 is a selective inhibitor of cyclooxygenase-2 with IC₅₀ value of 3.8 μ M [1].

Cyclooxygenase (COX) is an enzyme that is responsible for the formation of prostaglandins, prostacyclin and thromboxane. COX-2 converts arachidonic acid (AA) to prostaglandin endoperoxide H₂.

NS 398 is a selective COX-2 inhibitor and a novel anti-inflammatory agent. NS 398 inhibited COX-2 with IC₅₀ value of 3.8 μ M in a concentration-dependent way [1]. In RG/C2, AA/C1 and RR/C1 pre-malignant human colorectal adenoma cell lines, NS-398 (20 ~ 100 μ M) inhibited cell proliferation and induced apoptosis. In HT29 colorectal carcinoma cell lines, NS-398 induced apoptosis. Also, NS-398 increased COX-2 protein expression. In HT29 cultures, NS-398 inhibited prostaglandin E₂ secretion and COX-2 activity [2].

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In rats with trauma, NS-398 (0.3-5 mg/kg) exhibited anti-inflammatory and analgesic effects [1]. In Balb/C mice, NS-398 (10 mg/kg) reduced prostaglandin E2 (PGE2) production and also significantly decreased the production of NO, IL-6 and TNF- α . Also, NS-398 decreased the mRNA levels of COX-2 and inhibited NF- κ B activation. These results suggested that NS-398 regulated the inflammatory response after trauma and improved survival [3].

References:

- [1]. Futaki N, Takahashi S, Yokoyama M, et al. NS-398, a new anti-inflammatory agent, selectively inhibits prostaglandin G/H synthase/cyclooxygenase (COX-2) activity in vitro. Prostaglandins, 1994, 47(1): 55-59.
- [2]. Elder DJ, Halton DE, Crew TE, et al. Apoptosis induction and cyclooxygenase-2 regulation in human colorectal adenoma and carcinoma cell lines by the cyclooxygenase-2-selective non-steroidal anti-inflammatory drug NS-398. Int J Cancer, 2000, 86(4): 553-560.
- [3]. Mack Strong VE, Mackrell PJ, Concannon EM, et al. NS-398 treatment after trauma modifies NF-kappaB activation and improves survival. J Surg Res, 2001, 98(1): 40-46.

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