Meclofenamic acid

Cat. No.: HY-117275

CAS No.: 644-62-2

Molecular Formula: $C_{14}H_{11}Cl_2NO_2$

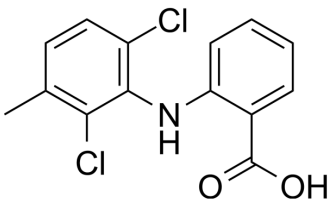
Molecular Weight: 296.15

Target: Gap Junction Protein; Endogenous Metabolite; Fat Mass and Obesity-associated Protein (FTO); Potassium Channel

Pathway: Cytoskeleton; Metabolic Enzyme/Protease; Membrane Transporter/Ion Channel

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 : 100 mg/mL (337.67 mM; Need ultrasonic)
Methanol : 7.14 mg/mL (24.11 mM; Need ultrasonic)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	3.3767 mL	16.8833 mL	33.7667 mL
5 mM	0.6753 mL	3.3767 mL	6.7533 mL
10 mM	0.3377 mL	1.6883 mL	3.3767 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 (8.44 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.5 mg/mL (8.44 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Meclofenamic acid (Meclofenamate) is a non-steroidal anti-inflammatory agent. Meclofenamic acid is a highly selective FTO (fat mass and obesity-associated) enzyme inhibitor. Meclofenamic acid competes with FTO binding for the m(6)A-containing nucleic acid. Meclofenamic acid is a non-selective gap-junction blocker. Meclofenamic acid inhibits hKv2.1 and hKv1.1, with IC_{50} values of 56.0 and 155.9 μM, respectively[1][2][3][4].

IC_{50} & Target

IC50: 1 μM (cyclooxygenase), 56.0 μM (hKv2.1), 155.9 μM (hKv1.1)[3]

In Vitro

Meclofenamic acid (0-100 μM, 24 h) inhibits FTO demethylation in a dose-response manner[1].

Meclofenamic acid inhibits enzyme cyclooxygenase, with an IC_{50} about 1 μM, thereby inhibiting the production of prostaglandins[2].
Meclofenamic acid inhibits the release of 5-HETE and LTB4 from human neutrophils stimulated with calcium ionophore and antagonizes the response of tissues to certain prostaglandins[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Western Blot Analysis[1]

Cell Line:	HeLa cells
Concentration:	0, 12.5, 25, 50, 100 μM
Incubation Time:	24 h
Result:	Inhibited FTO demethylation in a dose-response manner, and elevates the levels of cellular m6A in mRNA by targeting FTO.

CUSTOMER VALIDATION

- Theranostics. 2021 Jul 25;11(17):8464-8479.
- Sensor Actuat B-Chem. 2021, 129983.
- Biomed Opt Express. 2021 Mar 9.
- Biomater Adv. 2023 Sep 22, 213634.

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REFERENCES

[1]. Lee YT, et al. Inhibition of hKv2.1, a major human neuronal voltage-gated K+ channel, by meclofenamic acid. Eur J Pharmacol. 1999 Aug 13;378(3):349-56.

[2]. Conroy MC, et al. Pharmacology, pharmacokinetics, and therapeutic use of meclofenamate sodium. Clin J Pain. 1991;7 Suppl 1:S44-8.

[3]. Eleftheriou CG, et al. Meclofenamic acid improves the signal to noise ratio for visual responses produced by ectopicexpression of human rod opsin. Mol Vis. 2017 Jun 16;23:334-345. eCollection 2017.

[4]. Huang Y, et al. Meclofenamic acid selectively inhibits FTO demethylation of m6A over ALKBH5. Nucleic Acids Res. 2015 Jan;43(1):373-84.

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