Indomethacin

Cat. No.: HY-14397

CAS No.: 53-86-1

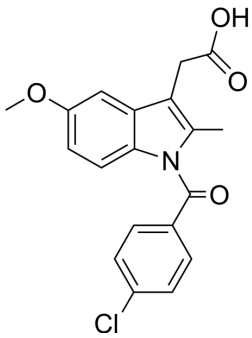
Molecular Formula: $C_{19}H_{16}ClNO_4$

Molecular Weight: 357.79

Target: COX; Antibiotic; Influenza Virus; Bacterial

Pathway: Immunology/Inflammation; Anti-infection

Storage: 4°C, protect from light
* In solvent : -80°C, 1 years; -20°C, 6 months (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 100 mg/mL (279.49 mM; Need ultrasonic)
Ethanol : 12.5 mg/mL (34.94 mM; Need ultrasonic)
H_2O : < 0.1 mg/mL (insoluble)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	2.7949 mL	13.9747 mL	27.9494 mL
	5 mM	0.5590 mL	2.7949 mL	5.5899 mL
	10 mM	0.2795 mL	1.3975 mL	2.7949 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: ≥ 2.08 mg/mL (5.81 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (5.81 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (5.81 mM); Clear solution
4. Add each solvent one by one: 10% EtOH >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 1.25 mg/mL (3.49 mM); Clear solution
5. Add each solvent one by one: 10% EtOH >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 1.25 mg/mL (3.49 mM); Clear solution
6. Add each solvent one by one: 10% EtOH >> 90% corn oil
   Solubility: ≥ 1.25 mg/mL (3.49 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Indomethacin (Indometacin) is a potent, orally active COX1/2 inhibitor with IC_{50} values of 18 nM and 26 nM for COX-1 and COX-2, respectively. Indomethacin has anticancer activity and anti-infective activity. Indomethacin can be used for cancer, inflammation and viral infection research[1][2][3].

IC_{50} & Target

Human COX-1	Human COX-2
18 nM (IC_{50}, in CHO cells)	26 nM (IC_{50}, in CHO cells)

In Vitro

Indomethacin (Indometacin) (0-150 μM; 24 hours; 3LL-D122 cells) has anticancer activity in vitro[2].
Indomethacin (Indometacin) (0-1000 μM) protects the host cells from damage caused by the virus through activates PKR, resulting in eIF2α phosphorylation, and in turn shutting of translation of viral protein and inhibiting replication of the virus (IC_{50}=2μM)[3].

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

Cell Viability Assay[2]

Cell Line:	3LL-D122 cells (highly metastatic variant of mouse LLcarcinoma cells)
Concentration:	0, 20, 50, 100 and 150μM
Incubation Time:	24 hours
Result:	Inhibited cell viability at 20 mM, with 50% inhibition at 60 mM.

Cell Viability Assay[2]

Cell Line:	3LL-D122 cells (highly metastatic variant of mouse LLcarcinoma cells)
Concentration:	0, 30 and 80μM
Incubation Time:	24 hours
Result:	Decreased in the percentage of cells at the G2/M phase and increased in the percentage of cells at G1 phase.

In Vivo

Indomethacin can be used in animal modeling to construct gastrointestinal ulcer models.

Indomethacin (Indometacin) (0.01-10 mg/kg; p.o.; for 3 hours; male Sprague-Dawley rats) induces paw oedema and hyperalgesmeasurement dose-dependently reversed carrageenan-induced hyperalgesia[1].
Indomethacin (Indometacin) (10 mg/mL; p.o.; daily, for 29 days; male C57BL/6J mice) inhibits tumor growth in vivo[2].

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

Animal Model:	Male Sprague-Dawley rats[1]
Dosage:	0.01-10 mg/kg
Administration:	Oral administration; for 3 hours
Result:	Inhibited the carrageenan-induced rat paw oedema (ED_{50}=2.0 mg/kg) and hyperalgesia (ED_{50}=1.5 mg/kg) in a dose-dependent manner.

Animal Model:	Male C57BL/6J mice[2]
Dosage:	10 mg/mL
Administration:	Oral administration; daily, for 29 days

Result:	Delayed the onset of tumor growth and the initial growth rate of the footpad tumors.

CUSTOMER VALIDATION

- Biomaterials. 16 September 2022.
- Hepatology. 2023 Feb 1;77(2):456-465.
- Clin Transl Med. 2021 Oct;11(10):e548.
- Chem Mater. 2017, 29(19):8221-8238.
- Appl Mater Today. 2023 Apr.

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REFERENCES

[1]. Riendeau D, et, al. Biochemical and pharmacological profile of a tetrasubstituted furanone as a highly selective COX-2 inhibitor. Br J Pharmacol. 1997 May;121(1):105-17.

[2]. Eli Y, et, al. Comparative effects of indomethacin on cell proliferation and cell cycle progression in tumor cells grown in vitro and in vivo. Biochem Pharmacol. 2001 Mar 1;61(5):565-71.

[3]. Amici C, et, al. Inhibition of viral protein translation by indomethacin in vesicular stomatitis virus infection: role of eIF2α kinase PKR. Cell Microbiol. 2015 Sep;17(9):1391-404.

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