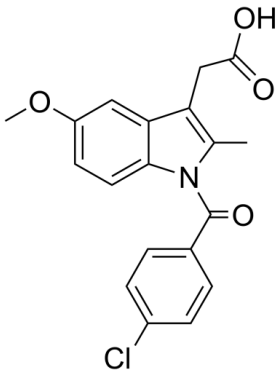
Data Sheet

Product Name:	Indomethacin
Cat. No.:	CS-2242
CAS No.:	53-86-1
Molecular Formula:	$C_{19}H_{16}ClNO_4$
Molecular Weight:	357.79
Target:	Antibiotic; Bacterial; COX; Influenza Virus
Pathway:	Anti-infection; Immunology/Inflammation
Solubility:	H2O : < 0.1 mg/mL (insoluble); Ethanol : 12.5 mg/mL (34.94 mM; Need ultrasonic); DMSO : 100 mg/mL (279.49 mM; Need ultrasonic)



BIOLOGICAL ACTIVITY:

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]. IC50 & Target: IC50: 18 nM (Human COX-1, in CHO cells), 26 nM (Human COX-2, in CHO cells)[1] ***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]. ***In Vivo:*** 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].

PROTOCOL (Extracted from published papers and Only for reference)

Animal Administration: Indomethacin is dissolved in sterile saline[2].[3]Rats[3]
To investigate the effects of Indomethacin treatment on both microglia activation, neuroprotection and adult neurogenesis, **rats** are divided in four experimental groups: animals injected with ET-1, treated with **sterile saline** (i.p.) for 7 days and perfused at 8 days following ET-1 injection (group 1, n=4); animals injected with ET-1, treated with **Indomethacin (2.5 mg/kg, i.p)** for **7 days** and perfused at **8 days** following ET-1 injection (group 2, n=4); animals injected with ET-1, treated with sterile saline (i.p.) for 7 days and perfused at 14 days following ET-1 injection (group 3, n=4); animals injected with ET-1, treated with **Indomethacin (2.5 mg/kg, i.p)** for **7 days** and perfused at **14 days** following ET-1 injection (group 4, n=4). After survival times of 7 or 14 days, animals are deeply anesthetized with a mixture of ketamine hydrochloride (72 mg/kg, i.p.) and xylazine hydrochloride (9 mg/kg, i.p.). After the verification of complete absence of both the corneal and the paw withdraw reflexes, the animals are transcardially perfused with heparinized 0.9% warm phosphate-buffered saline (PBS) followed by 4% cold paraformaldehyde in 0.1 M phosphate buffer (PB), pH 7.4. Brains are post-fixed for 24 h in the same fixative and cryoprotected in different gradients of sucrose-glycerol solutions over 7 days. The tissue is then frozen in an embedding medium, and cut at 30 μM in the coronal plane using a cryostat. Sections are then mounted onto gelatinized slides and stored in a freezer at -20°C[3].

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.

[4]. Helleberg L, et, al. Clinical Pharmacokinetics of indomethacin. Clin Pharmacokinet. 1981 Jul-Aug;6(4):245-58.

[5]. Sabiu S, et, al. Indomethacin-induced gastric ulceration in rats: Protective roles of Spondias mombin a nd Ficus exasperate. Toxicol Rep. 2015 Jan 8:2:261-267.

[6]. Danisman B, et, al, Carnosic Acid Ameliorates Indomethacin-Induced Gastric Ulceration in Rats by Alleviating Oxidative Stress and Inflammation. Biomedicines. 2023 Mar 9;11(3):829.

CAIndexNames:

1H-Indole-3-acetic acid, 1-(4-chlorobenzoyl)-5-methoxy-2-methyl-

SMILES:

COC1=CC=C(N(C(C2=CC=C(Cl)C=C2)=O)C(C)=C3CC(O)=O)C3=C1

Tel: 610-426-3128 Fax: 888-484-5008 E-mail: sales@ChemScene.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA