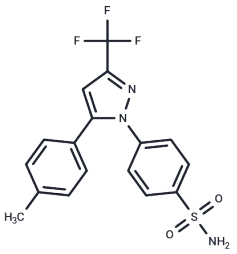
Data Sheet (Cat.No.T0466)

TargetMol

Celecoxib

Chemical Properties



CAS No. : 169590-42-5

Formula: C17H14F3N3O2S

Molecular Weight: 381.37

Appearance: no data available

Storage: Powder: -20°C for 3 years | In solvent: -80°C for 1 year

Biological Description

Description	Celecoxib (SC 58635) is a Nonsteroidal Anti-inflammatory Drug. The mechanism of action of celecoxib is as a Cyclooxygenase Inhibitor.
Targets(IC50)	COX
In vitro	In rats, Celecoxib at doses ranging from 200 to 600 mg/kg does not induce acute gastrointestinal (GI) toxicity. Furthermore, continuous treatment with Celecoxib at these dosages for over ten days fails to produce GI toxicity. In the adjuvant-induced arthritis model, Celecoxib mitigates chronic inflammation with an effective dose 50 (ED50) of 0.37 mg/kg. Additionally, the compound exhibits analgesic activity in the Hargreaves pain model, with an ED50 of 34.5 mg/kg.
In vivo	Celecoxib inhibits cell proliferation in nasopharyngeal carcinoma cell lines HNE1 (IC50=32.86 μM) and CNE1-LMP1 (IC50= 61.31 μM). It also selectively inhibits COX-1 (IC50=15 μM) and COX-2 (IC50=40 nM) with effective selectivity.
Kinase Assay	COX enzyme assay in vitro: Expression of COX protein in insect cells is determined by assessing PG-synthetic capability in homogenates from cells incubated for 3 days with COX-1 or COX-2 baculovirus. Cells expressing COX-1 or COX-2 are homogenized and incubated with arachidonic acid (10 μM). COX activity is determined by monitoring PG production. No COX activity is detected in mock-infected Sf9 cells. Celecoxib are preincubated with crude 1% CHAPS homogenates (2-10 μg of protein) for 10 minutes before addition of arachidonic acid. PGE2 formed is detected by ELISA after 10 minute incubation.
Cell Research	The antiproliferative effect of Celecoxib on NPC cells is assessed using an MTT assay. Cells are seeded into 96-well plates and allowed to attach for 24 hours. The cells are then treated with increasing concentrations of Celecoxib (0 to 75 μM) dissolved in DMSO (final concentration ≤0.1%) and incubated for up to 48 hours. After the incubation, 20 μL of MTT dye (5 mg/mL) are added to each well and cells are incubated at 37 °C for 4 hours. After removing the supernatants, the crystals are dissolved in DMSO and the absorbance is measured at 490 nm. The half-maximal inhibitory concentration (IC50) values and the 95% confidence intervals are calculated using probit regression using SPSS 15.0 software. The experiment is performed in triplicate and repeated at least three times.(Only for Reference)

Solubility Information

Solubility	10% DMSO+40% PEG300+5% Tween 80+45% Saline: 7.1 mg/mL (18.62 mM),Solution. Ethanol: 31 mg/mL (81.29 mM),Sonication is recommended. 2% DMSO+40% PEG300+5% Tween 80+53% H2O: 3 mg/mL (7.87 mM),Solution. DMSO: 60 mg/mL (157.33 mM),Sonication is recommended. (< 1 mg/ml refers to the product slightly soluble or insoluble)

Preparing Stock Solutions

	1mg	5mg	10mg
1 mM	2.6221 mL	13.1106 mL	26.2213 mL
5 mM	0.5244 mL	2.6221 mL	5.2443 mL
10 mM	0.2622 mL	1.3111 mL	2.6221 mL
50 mM	0.0524 mL	0.2622 mL	0.5244 mL

Please select the appropriate solvent to prepare the stock solution, according to the solubility of the product in different solvents. Please use it as soon as possible.

Reference

Liu DB, et al. Celecoxib induces apoptosis and cell-cycle arrest in nasopharyngeal carcinoma cell lines via inhibition of STAT3 phosphorylation. Acta Pharmacol Sin. 2012 May;33(5):682-90.
Kazberuk A, Chalecka M, Palka J, et al. Nonsteroidal Anti-Inflammatory Drugs as PPARγ Agonists Can Induce PRODH/POX-Dependent Apoptosis in Breast Cancer Cells: New Alternative Pathway in NSAID-Induced Apoptosis. International Journal of Molecular Sciences. 2022, 23(3): 1510.
Zhang, Linhao, et al. Inhibition of cyclooxygenase-2 enhanced intestinal epithelial homeostasis via suppressing β-catenin signalling pathway in experimental liver fibrosis. Journal of Cellular and Molecular Medicine. 2021
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Zhang L, Zhao C, Dai W, et al.Disruption of cholangiocyte-B cell crosstalk by blocking the CXCL12-CXCR4 axis alleviates liver fibrosis.Cellular and Molecular Life Sciences.2023, 80(12): 379.
Zheng X, Zhang C, Li L, et al.Improvement of astrocytic gap junction involves the anti-depressive effect of celecoxib through inhibition of NF-κB.Brain Research Bulletin.2024: 110871.
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