Diflunisal

Cat. No.: HY-18342

CAS No.: 22494-42-4

Molecular Formula: $C_{13}H_8F_2O_3$

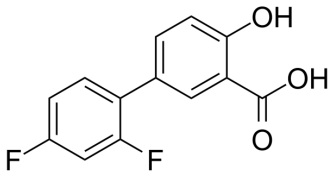
Molecular Weight: 250.2

Target: COX

Pathway: Immunology/Inflammation

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

DMSO : 50 mg/mL (199.84 mM; Need ultrasonic)

Preparing Stock Solutions	Mass / Solvent / Concentration	1 mg	5 mg	10 mg
	1 mM	3.9968 mL	19.9840 mL	39.9680 mL
	5 mM	0.7994 mL	3.9968 mL	7.9936 mL
	10 mM	0.3997 mL	1.9984 mL	3.9968 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 (9.99 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.5 mg/mL (9.99 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

Diflunisal (MK-647) is a salicylate derivative with nonsteroidal anti-inflammatory and uricosuric properties, which is used alone as an analgesic and in rheumatoid arthritis patients. The mechanism of action of diflunisal is as a Cyclooxygenase (COX) Inhibitor.

IC_{50} & Target

COX

In Vivo

Administration of increasing doses of Diflunisal to rats shows that the effect of the dose on the pharmacokinetics of Diflunisal is quite complicated. The plasma concentrations of Diflunisal decline exponentially with time, albeit with a half-life that increases with increasing dose. The CL_P is reduced considerably when the dose increases from 3 to 10 mg/kg and then remains relatively constant over the dose range of 10 to 60 mg/kg. Diflunisal has been shown to be highly bound to rat

plasma protein and dependent on concentration. The fraction of unbound Diflunisal is increased about 10-fold over the concentration range of 5 to 300 μg/mL[1]. Diflunisal exhibits activity after oral administration with potency about 25 times greater than that of aspirin, about 3 times that of glafenine and twice that of zomepirac[2].

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

PROTOCOL

Animal Administration [1]

Rats[1]

For the study of dose dependency, Diflunisal is administered by i.a. injection in doses of 3, 10, 30 and 60 mg/kg (1.5, 5, 15 and 30 mg/mL dosing solution in 0.1 M $NaHCO_3$). The infusion studies consist of a bolus injection of Diflunisal followed immediately by a 7-hr infusion at a constant rate. Seven groups of rats are included in the infusion studies. The loading doses used are 2, 3, 5, 10, 25, 50 and 80 mg/kg and their corresponding infusion rates are 3, 4.5, 9, 18, 36, 72 and 144 μg/min (0.576 mL/hr of seven different dosing solutions: 0.31, 0.47, 0.94, 1.88, 3.75, 7.5 and 15 mg/mL in 0.1 M $NaHCO_3$). Blood samples are collected serially at appropriate times for the dose-dependency studies, but collected hourly for the infusion studies. Plasma is obtained immediately by centrifugation of blood samples and extracted with acetonitrile and then frozen (-20°C) until assay[1].

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

REFERENCES

[1]. Lin JH, et al. Dose-dependent pharmacokinetics of diflunisal in rats: dual effects of protein binding and metabolism. J Pharmacol Exp Ther. 1985 Nov;235(2):402-6.

[2]. Winter CA, et al. Analgesic activity of diflunisal [MK-647; 5-(2,4-difluorophenyl)salicylic acid] in rats with hyperalgesia induced by Freund's adjuvant. J Pharmacol Exp Ther. 1979 Dec;211(3):678-85.

[3]. Cappon GD, et al. Relationship between cyclooxygenase 1 and 2 selective inhibitors and fetal development when administered to rats and rabbits during the sensitive periods for heart development and midline closure. Birth Defects Res B Dev Reprod Toxicol.

Tel: 609-228-6898 Fax: 609-228-5909 E-mail: tech@MedChemExpress.com

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