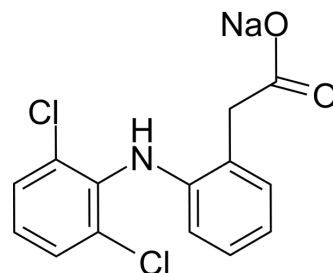


Diclofenac Sodium

Cat. No.:	HY-15037
CAS No.:	15307-79-6
Molecular Formula:	C ₁₄ H ₁₀ Cl ₂ NNaO ₂
Molecular Weight:	318.13
Target:	COX; Apoptosis
Pathway:	Immunology/Inflammation; Apoptosis
Storage:	4°C, sealed storage, away from moisture * In solvent : -80°C, 6 months; -20°C, 1 month (sealed storage, away from moisture)



SOLVENT & SOLUBILITY

In Vitro	DMSO : 125 mg/mL (392.92 mM; Need ultrasonic)					
	H ₂ O : 10 mg/mL (31.43 mM; ultrasonic and warming and heat to 60°C)					
	Preparing Stock Solutions	Solvent	Mass	1 mg	5 mg	10 mg
		Concentration				
		1 mM		3.1434 mL	15.7168 mL	31.4337 mL
5 mM			0.6287 mL	3.1434 mL	6.2867 mL	
10 mM		0.3143 mL	1.5717 mL	3.1434 mL		
Please refer to the solubility information to select the appropriate solvent.						
In Vivo	1. Add each solvent one by one: PBS Solubility: 4.55 mg/mL (14.30 mM); Clear solution; Need ultrasonic and warming and heat to 60°C					

BIOLOGICAL ACTIVITY

Description	Diclofenac Sodium (GP 45840) is a potent and nonselective anti-inflammatory agent, acts as a COX inhibitor, with IC ₅₀ s of 4 and 1.3 nM for human COX-1 and COX-2 in CHO cells ^[1] , and 5.1 and 0.84 μM for ovine COX-1 and COX-2, respectively ^[2] . Diclofenac Sodium induces apoptosis of neural stem cells (NSCs) via the activation of the caspase cascade ^[3] .			
IC ₅₀ & Target	Human COX-2 1.3 nM (IC ₅₀ , in CHO cells)	Human COX-1 4 nM (IC ₅₀ , in CHO cells)	Ovine COX-2 0.84 μM (IC ₅₀)	Ovine COX-1 5.1 μM (IC ₅₀)
In Vitro	Diclofenac effectively blocks COX-1 mediated prostanoid production from U937 cell microsomes, with an IC ₅₀ of 7±3 nM ^[1] . ?Diclofenac (1-60 μM; 1 day) induces neural stem cells (NSCs) death in a concentration-dependent manner ^[3] . ?Diclofenac (10-60 μM; 6 hours) increases the expression of cleaved (activated) caspase-3 ^[3] . MCE has not independently confirmed the accuracy of these methods. They are for reference only. Cell Viability Assay ^[3]			

Cell Line:	Neural stem cells (NSCs)
Concentration:	1, 3, 10, 30, 60 μ M
Incubation Time:	1 day
Result:	Induction of cell death was concentration-dependent and the effect was not saturated at a concentration of up to 60 μ M.

Western Blot Analysis^[3]

Cell Line:	Neural stem cells (NSCs)
Concentration:	10, 30 or 60 μ M
Incubation Time:	6 hours
Result:	The activation of caspase-3 was increased in a concentration-dependent manner.

In Vivo

Diclofenac (3 mg/kg, b.i.d., for 5 days) significantly increases faecal ⁵¹Cr excretion in rats, and such effect is also observed in squirrel monkeys after administered of 1 mg/kg twice daily for 4 days^[1].

?Diclofenac (10 mg/kg; administered via oral route just prior to induction of inflammation) shows in vivo anti-inflammatory activity in Wistar rats^[1].

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

Animal Model:	Male Sprague-Dawley rats (150±200 g) ^[1]
Dosage:	3 mg/kg
Administration:	Oral administration, b.i.d., for 5 days
Result:	Resulted in a significant increase in faecal ⁵¹ Cr excretion.

Animal Model:	Wistar rats (150-175 g) bearing Formalin-induced rat foot paw edema model ^[2]
Dosage:	10 mg/kg
Administration:	Administered via oral route just prior to induction of inflammation
Result:	Showed in vivo anti-inflammatory activity (% edema inhibition=29.2, 1 h; 22.2, 3 h; 20, 6 h).

CUSTOMER VALIDATION

- J Hazard Mater. 2015 May 30;289:18-27.
- Chemosphere. 2019 Jun;225:378-387.
- Int J Mol Sci. 2022, 23(20), 12066.
- Chem-Biol Interact. 2021, 109425.
- J Phys Chem Solids. 2017 October;109:117-123.

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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]. Labib MB, et al. Design, synthesis of novel isoindoline hybrids as COX-2 inhibitors: Anti-inflammatory, analgesic activities and docking study. Bioorg Chem. 2018 Oct;80:70-80.
- [3]. Chiho Kudo, et al. Diclofenac Inhibits Proliferation and Differentiation of Neural Stem Cells. Biochem Pharmacol. 2003 Jul 15;66(2):289-95.
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Caution: Product has not been fully validated for medical applications. For research use only.

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