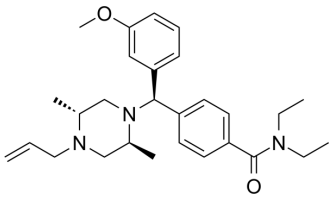
SNC80

Cat. No.:	HY-101202
CAS No.:	156727-74-1
Molecular Formula:	$C_{28}H_{39}N_3O_2$
Molecular Weight:	449.63
Target:	Opioid Receptor
Pathway:	GPCR/G Protein; Neuronal Signaling
Storage:	Powder -20°C 3 years 4°C 2 years In solvent -80°C 6 months -20°C 1 month



SOLVENT & SOLUBILITY

In Vitro

DMSO : 33.33 mg/mL (74.13 mM; ultrasonic and adjust pH to 3 with HCl)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.2241 mL	11.1203 mL	22.2405 mL
	5 mM	0.4448 mL	2.2241 mL	4.4481 mL
	10 mM	0.2224 mL	1.1120 mL	2.2241 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: ≥ 3.33 mg/mL (7.41 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 3.33 mg/mL (7.41 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 3.33 mg/mL (7.41 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

SNC80 (NIH 10815) is a potent, highly selective and non-peptide δ-opioid receptor agonist with a K_i of 1.78 nM and an IC_{50} of 2.73 nM. SNC80 also selectively activates μ-δ heteromer in HEK293 cells with an EC_{50} of 52.8 nM. SNC80 shows antinociceptive, antihyperalgesic and antidepressant‐like effects. SNC80 has the potential for multiple headache disorders treatment[1][2][3][4][5][6].

IC_{50} & Target

IC50: 2.73 nM (δ-opioid receptor), 5457 nM (μ-opioid receptor)[3]
Ki: 1.78 nM (δ-opioid receptor), 881.5 nM (μ-opioid receptor) and 441.8 nM (κ-opioid receptor)[2]

In Vitro	SNC80 selectively activates μ-δ heteromer in HEK293 cells with an EC_{50} of 52.8 nM. SNC80 exhibits substantially greater activity in cells coexpressing μ- and δ-opioid receptors than in cells either singly expressing δ-opioid receptors or coexpressing δ- and κ-opioid receptors[4]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.
In Vivo	SNC80 (10 mg/kg; intraperitoneal injection; once; C57BL6/J mice) treatment significantly attenuated this allodynia caused by overuse of Sumatriptan[1]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male and female C57BL6/J mice (20-30g) injected with Sumatriptan[1]
Dosage:	10 mg/kg
Administration:	Intraperitoneal injection; once
Result:	Significantly attenuated allodynia.

REFERENCES

[1]. Moye LS, et al. Delta opioid receptor agonists are effective for multiple types of headache disorders. Neuropharmacology. 2019 Apr;148:77-86.

[2]. Bilsky EJ, et al. SNC 80, a selective, nonpeptidic and systemically active opioid delta agonist. J Pharmacol Exp Ther. 1995 Apr;273(1):359-66.

[3]. Calderon SN, et al. Probes for narcotic receptor mediated phenomena. 19. Synthesis of (+)-4-[(alpha R)-alpha-((2S,5R)-4-allyl-2,5-dimethyl-1-piperazinyl)-3-methoxybenzyl]-N,N-diethylbenzamide (SNC 80): a highly selective, nonpeptide delta opioid receptor

[4]. Vicente-Sanchez A, et al. The delta opioid receptor tool box. Neuroscience. 2016 Dec 3;338:145-159.

[5]. Dripps IJ, et al. Role of signalling molecules in behaviours mediated by the δ opioid receptor agonist SNC80. Br J Pharmacol. 2018 Mar;175(6):891-901.

[6]. Metcalf MD, et al. The δ opioid receptor agonist SNC80 selectively activates heteromeric μ-δ opioid receptors. ACS Chem Neurosci. 2012 Jul 18;3(7):505-9.

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