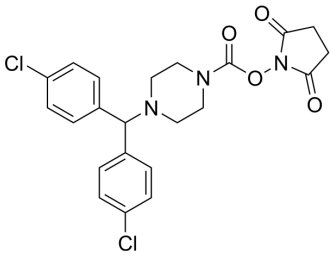
MJN110

Cat. No.:	HY-117474
CAS No.:	1438416-21-7
Molecular Formula:	$C_{22}H_{21}Cl_2N_3O_4$
Molecular Weight:	462.33
Target:	MAGL
Pathway:	Metabolic Enzyme/Protease
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 : 250 mg/mL (540.74 mM; Need ultrasonic)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	2.1630 mL	10.8148 mL	21.6296 mL
	5 mM	0.4326 mL	2.1630 mL	4.3259 mL
	10 mM	0.2163 mL	1.0815 mL	2.1630 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: ≥ 2.08 mg/mL (4.50 mM); Clear solution
2. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 2.08 mg/mL (4.50 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 2.08 mg/mL (4.50 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

MJN110 is an orally active and selective monoacylglycerol lipase (MAGL) inhibitor with IC_{50}s of 9.1 nM and 2.1 nM for hMAGL and 2-arachidonoylglycerol (2-AG), respectively[1]. MJN110 produces opioid-sparing effects and displays strong antihyperalgesic activity[2].

IC_{50} & Target

IC50: 9.1 nM (hMAGL) and 2.1 nM (2-AG)[1]

In Vitro

MJN110 (0.01-1000 nM; 4 hours) has the primary serine hydrolase target, hMAGL, with an IC_{50} of ~1 nM and 10- and 100-fold

selectivity windows over ABHD6 and LYPLA1/2, respectively[2].

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

Western Blot Analysis[2]

Cell Line:	Human-derived PC3 cells
Concentration:	0.01, 0.1, 1, 10, 100, 1000 nM
Incubation Time:	4 hours
Result:	HMAGL acted as the primary serine hydrolase target with an IC_{50} of ~1 nM.

In Vivo

MJN110 (i.p.; 0.0818 mg/kg; twice daily for 5.5 days) reverses chronic constriction injury (CCI)-induced mechanical allodynia and thermal hyperalgesia in a dose-dependent manner. The respective ED_{50} value (95% confidence limits) is 0.430 (0.233-0.793) mg/kg[1].

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

Animal Model:	Male C57BL/6J mice ranged from 18 to 35 g[1]
Dosage:	0.0818 mg/kg
Administration:	I.p.; twice daily for 5.5 days
Result:	Reversed CCI-induced mechanical allodynia and thermal hyperalgesia in a dose-dependent manner.

CUSTOMER VALIDATION

- Research Square Print. Nov 3rd, 2022
- Università degli Studi di CAGLIARI. Dipartimento di Biomedicina, Neuroscienze e Diagnostica avanzata. 2021 Sep.

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REFERENCES

[1]. Wilkerson JL, et al. The Selective Monoacylglycerol Lipase Inhibitor MJN110 Produces Opioid-Sparing Effects in a Mouse Neuropathic Pain Model. J Pharmacol Exp Ther. 2016 Apr;357(1):145-56.

[2]. Niphakis MJ, et al. Evaluation of NHS carbamates as a potent and selective class of endocannabinoid hydrolase inhibitors. ACS Chem Neurosci. 2013 Sep 18;4(9):1322-32.

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