7-Chlorokynurenic acid sodium salt

Cat. No.: HY-100811A

CAS No.: 1263094-00-3

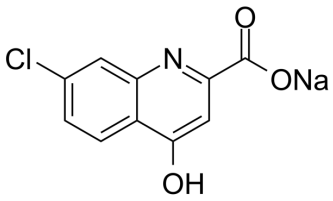
Molecular Formula: $C_{10}H_5ClNNaO_3$

Molecular Weight: 245.59

Target: iGluR

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling

Storage: 4°C, stored under nitrogen
* In solvent : -80°C, 6 months; -20°C, 1 month (stored under nitrogen)



SOLVENT & SOLUBILITY

In Vitro

H_2O : 50 mg/mL (203.59 mM; Need ultrasonic)
DMSO : ≥ 33.67 mg/mL (137.10 mM)
* "≥" means soluble, but saturation unknown.

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	4.0718 mL	20.3591 mL	40.7183 mL
5 mM	0.8144 mL	4.0718 mL	8.1437 mL
10 mM	0.4072 mL	2.0359 mL	4.0718 mL

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 6.67 mg/mL (27.16 mM); Clear solution; Need ultrasonic and warming and heat to 60°C
2. Add each solvent one by one: 10% DMSO >> 40% PEG300 >> 5% Tween-80 >> 45% saline
   Solubility: ≥ 0.67 mg/mL (2.73 mM); Clear solution
3. Add each solvent one by one: 10% DMSO >> 90% (20% SBE-β-CD in saline)
   Solubility: ≥ 0.67 mg/mL (2.73 mM); Clear solution
4. Add each solvent one by one: 10% DMSO >> 90% corn oil
   Solubility: ≥ 0.67 mg/mL (2.73 mM); Clear solution

BIOLOGICAL ACTIVITY

Description

7-Chlorokynurenic acid sodium salt (7-CKA sodium salt) is a potent and selective antagonist of the glycine B coagonist site of the N-methyl-D-aspartate (NMDA) receptor (IC_{50}=0.56 μM). 7-Chlorokynurenic acid sodium salt is also a potent inhibitor of the reuptake of glutamate into synaptic vesicles with a K_i of 0.59 μM. 7-Chlorokynurenic acid sodium salt has potent antinociceptive actions after neuraxial delivery[1][2].

IC_{50} & Target	Ki: 0.59 μM (reuptake of glutamate)[1] IC50: 0.56 μM (Glycine B coagonist site of NMDA receptor)[2]
In Vivo	Male Sprague-Dawley rats pretreated with 7-Chlorokynurenic acid sodium salt (10 nM) shows a significant retardation of development of both the electroencephalographic and motor (17.7±2.9 daily stimulations) components of the seizure response[3]. MCE has not independently confirmed the accuracy of these methods. They are for reference only.

REFERENCES

[1]. Kemp JA, et al. 7-Chlorokynurenic acid is a selective antagonist at the glycine modulatory site of the N-methyl-D-aspartate receptor complex. Proc Natl Acad Sci U S A. 1988 Sep;85(17):6547-50.

[2]. Yaksh TL, et al. Characterization of the Effects of L-4-Chlorokynurenine on Nociception in Rodents. J Pain. 2017 Oct;18(10):1184-1196.

[3]. Croucher MJ, et al. 7-Chlorokynurenic acid, a strychnine-insensitive glycine receptor antagonist, inhibits limbic seizurekindling. Neurosci Lett. 1990 Oct 2;118(1):29-32.

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