L-Glutamic acid monosodium salt

Cat. No.: HY-14608A

CAS No.: 142-47-2

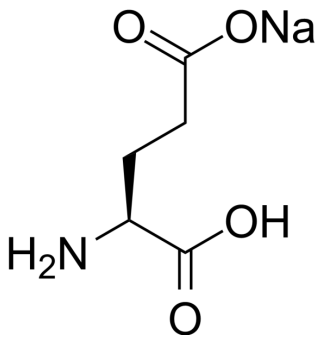
Molecular Formula: $C_5H_8NNaO_4$

Molecular Weight: 169.11

Target: iGluR; Apoptosis; Ferroptosis; Endogenous Metabolite

Pathway: Membrane Transporter/Ion Channel; Neuronal Signaling; Apoptosis; Metabolic Enzyme/Protease

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

H_2O : 7.14 mg/mL (42.22 mM; Need ultrasonic)
DMSO : < 1 mg/mL (insoluble or slightly soluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	5.9133 mL	29.5666 mL	59.1331 mL
5 mM	1.1827 mL	5.9133 mL	11.8266 mL
10 mM	0.5913 mL	2.9567 mL	5.9133 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 100 mg/mL (591.33 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

L-Glutamic acid monosodium salt is an excitatory amino acid neurotransmitter that acts as an agonist for all subtypes of glutamate receptors (metabolic rhodophylline, NMDA, and AMPA). L-Glutamic acid monosodium salt has an agonist effect on the release of DA from dopaminergic nerve endings. L-Glutamic acid monosodium salt can be used in the study of neurological diseases[1][2][3][4][5].

IC_{50} & Target

Microbial Metabolite | Human Endogenous Metabolite

In Vitro

L-Glutamic acid monosodium salt (120, 500, 750, 1000 mg/dL) can reduce the harmful effect of lithium on the embryonic development of Xenopus Xenopus[3].
L-Glutamic acid monosodium salt (2, 5, 10, 20 mM, 24-48 h) can induce neuroexcitotoxicity in neuroblastoma[4].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Cell Viability Assay[4]

Cell Line:	SH-SY5Y, IMR-32, SK-N-BE(2)
Concentration:	2, 5, 10, 20 mM
Incubation Time:	24 and 48 h
Result:	Reduced cell viability in a dose-dependent manner.

In Vivo

L-Glutamic acid monosodium salt (3 g/kg, subcutaneous injection) can promote excitotoxic degeneration of retinal ganglion cells in mice[1].
L-Glutamic acid monosodium salt (750 mg/kg, intraperitoneal injection) can reduce and inhibit oxidative stress induced by chlorpyrifos (CPF) in rats[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Crv4 mice model[1]
Dosage:	3g/kg
Administration:	s.c., single dose
Result:	Reduced the number of Brn-3a$^+$ RGCs by >70%. In the absence of mGlu1 receptor, MSG-induced retinal damage is diminished.

Animal Model:	CPF-induced rat model[5]
Dosage:	750 mg/kg
Administration:	i.p.
Result:	Reduced CPF-induced oxidative stress by increasing the level of GSH and activity of GSH-related enzymes.

CUSTOMER VALIDATION

- Neurochem Int. 2023 Jul 24;105587.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Giorguieff MF, et al. Presynaptic effect of L-glutamic acid on the release of dopamine in rat striatal slices. Neurosci Lett. 1977 Oct;6(1):73-7.

[2]. Boga Pekmezekmek A, et al. L-Glutamic acid monosodium salt reduces the harmful effect of lithium on the development of Xenopus laevis embryos. Environ Sci Pollut Res Int. 2020 Nov;27(33):42124-42132.

[3]. Croce N, et al. Hydrochloric acid alters the effect of L-glutamic acid on cell viability in human neuroblastoma cell cultures. J Neurosci Methods. 2013 Jul 15;217(1-2):26-30.

[4]. Salyha N, et al. Protective role of l-glutamic acid and l-cysteine in mitigation the chlorpyrifos-induced oxidative stress in rats. Environ Toxicol Pharmacol. 2018 Dec;64:155-163.

[5]. Liberatore F, et al. Permissive role for mglu1 metabotropic glutamate receptors in excitotoxic retinal degeneration. Neuroscience. 2017 Sep 14. pii: S0306-4522(17)30640-1.

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