Cycloleucine

Cat. No.: HY-30008

CAS No.: 52-52-8

Molecular Formula: $C_6H_{11}NO_2$

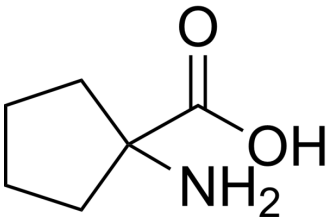
Molecular Weight: 129.16

Target: iGluR

Pathway: Membrane Transporter/Ion Channel; 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

H_2O : 20 mg/mL (154.85 mM; Need ultrasonic)
DMSO : < 1 mg/mL (ultrasonic) (insoluble or slightly soluble)

Preparing Stock Solutions	Solvent / Mass / Concentration	1 mg	5 mg	10 mg
	1 mM	7.7423 mL	38.7117 mL	77.4233 mL
	5 mM	1.5485 mL	7.7423 mL	15.4847 mL
	10 mM	0.7742 mL	3.8712 mL	7.7423 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 (774.23 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

Cycloleucine is a specific inhibitor of S-adenosyl-methionine mediated methylation. Cycloleucine is antagonist of NMDA receptor associated glycine receptor, with a K_i of 600 μM. Cycloleucine is also a competitive inhibitor of ATP: L-methionine-S-adenosyl transferase in vitro. Cycloleucine has anxiolytic and cytostatic effects[1][2][3][4].

IC_{50} & Target

NMDA Receptor

In Vitro

Cycloleucine (4-40 mM; 3 h) blocks internal methylation of viral RNA in B77 transformed chick embryo fibroblasts[5].
?Cycloleucine (40 mM; 24 h) blocks the formation of both m^6A and the penultimate G^m in B77 38S RNA subunits by greater than 90%[5].
?Cytostatic (10 μg/mL) inhibits the viability human KB and mouse L1210s leukemia cell lines[5].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Cycloleucine (0.5-4 μg; intracerebroventrical injection) increases time spent in open arms, open arm entries, and extreme arrivals in rats[3].?Cycloleucine reduces thymus and spleen weights in Semliki Forest virus (SFV) strain A7(74) infected and control mice[6].

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

Animal Model:	Male rats bilaterally cannulated into the nucleus accumbens septi (NAS)[3]
Dosage:	1 μL of 0.5, 1.0, 2.0, 4 μg/μL
Administration:	Intracerebroventrical injection
Result:	Increased time spent in the open arms and extreme arrivals at all doses. Increased open arm entries at the dose of 4 μg.

CUSTOMER VALIDATION

- Cell Signal. 2023 Jun 13;110751.
- Poult Sci. 4 October 2022, 102219.
- Stem Cells Int. 2023 Jun 6.
- Int J Chron Obstruct Pulmon Dis. 2023 May 30;18:1007-1017.

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REFERENCES

[1]. Hood WF, et, al. 1-Aminocyclobutane-1-carboxylate (ACBC): a specific antagonist of the N-methyl-D-aspartate receptor coupled glycine receptor. Eur J Pharmacol. 1989 Feb 28;161(2-3):281-2.

[2]. Caboche M, et, al. RNA methylation and control of eukaryotic RNA biosynthesis. Effects of cycloleucine, a specific inhibitor of methylation, on ribosomal RNA maturation. Eur J Biochem. 1977 Mar 15;74(1):19-29.

[3]. Gargiulo API, et, al. Effects of Cycloleucine in the Nucleus Accumbens Septi on the Elevated plus Maze Test in Rats. Neuropsychobiology. 2020;79(3):191-197.

[4]. Dimock K, et, al. Cycloleucine blocks 5'-terminal and internal methylations of avian sarcoma virus genome RNA. Biochemistry. 1978 Aug 22;17(17):3627-32.

[5]. Duś D, et, al. Cytostatic activity in vitro of cycloleucine, aspartic acid and glutamic acid phosphonic analogues. Arch Immunol Ther Exp (Warsz). 1980;28(3):433-8.

[6]. S Amor, et al. The effect of cycloleucine on SFV A7(74) infection in mice. Br J Exp Pathol. 1987 Apr;68(2):225-35.

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