D-Alanine

Cat. No.: HY-41700

CAS No.: 338-69-2

Molecular Formula: $C_3H_7NO_2$

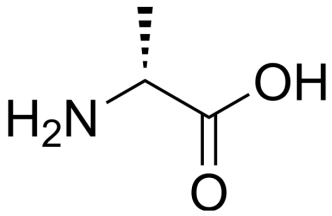
Molecular Weight: 89.09

Target: Endogenous Metabolite

Pathway: Metabolic Enzyme/Protease

Storage:

Powder	-20°C	3 years
	4°C	2 years
In solvent	-80°C	2 years
	-20°C	1 year



SOLVENT & SOLUBILITY

In Vitro

H_2O : 120 mg/mL (1346.95 mM; Need ultrasonic)

DMSO : < 1 mg/mL (ultrasonic;warming;heat to 80°C) (insoluble or slightly soluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	11.2246 mL	56.1230 mL	112.2460 mL
5 mM	2.2449 mL	11.2246 mL	22.4492 mL
10 mM	1.1225 mL	5.6123 mL	11.2246 mL

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

In Vivo

1. Add each solvent one by one: PBS
   Solubility: 50 mg/mL (561.23 mM); Clear solution; Need ultrasonic

BIOLOGICAL ACTIVITY

Description

D-Alanine is a weak GlyR (inhibitory glycine receptor) and PMBA agonist, with an EC_{50} of 9 mM for GlyR[1][2].

IC_{50} & Target

Microbial Metabolite	GlyR 9 mM (EC50)	PMBA	Human Endogenous Metabolite

In Vitro

D-Alanine induces dose-dependent depolarization of motoneurones in newborn rats[2].

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

In Vivo

D-Alanine (100 mg/kg, p.o.) together with CBIO (30 mg/kg) relieves Dizocilpine (0.1 mg/kg)-induced prepulse inhibition deficits in mice[3].

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

REFERENCES

[1]. Mao Horio, et al. Effects of D-Amino Acid Oxidase Inhibitor on the Extracellular D-Alanine Levels and the Efficacy of D-Alanine on Dizocilpine-Induced Prepulse Inhibition Deficits in Mice. The Open Clinical Chemistry Journal, 2009, 2: 16-21

[2]. Schmieden V, et al. Pharmacology of the inhibitory glycine receptor: agonist and antagonist actions of amino acids and piperidine carboxylic acid compounds. Mol Pharmacol. 1995 Nov;48(5):919-27.

[3]. Saitoh T, et al. A novel antagonist, phenylbenzene omega-phosphono-alpha-amino acid, for strychnine-sensitive glycine receptors in the rat spinal cord. Br J Pharmacol. 1994 Sep;113(1):165-70.

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