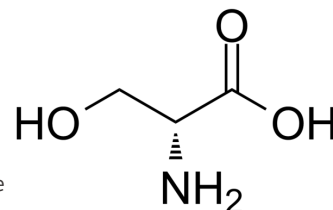


## D-Serine

Cat. No.:	HY-100808		
CAS No.:	312-84-5		
Molecular Formula:	C <sub>3</sub> H <sub>7</sub> NO <sub>3</sub>		
Molecular Weight:	105.09		
Target:	iGluR; Endogenous Metabolite		
Pathway:	Membrane Transporter/Ion Channel; Neuronal Signaling; 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<sub>2</sub>O : ≥ 50 mg/mL (475.78 mM)  
Methanol : < 1 mg/mL (ultrasonic;warming;heat to 60°C) (insoluble)  
\* "≥" means soluble, but saturation unknown.

	Solvent Concentration	Mass	1 mg	5 mg	10 mg
Preparing Stock Solutions	1 mM		9.5157 mL	47.5783 mL	95.1565 mL
	5 mM		1.9031 mL	9.5157 mL	19.0313 mL
	10 mM		0.9516 mL	4.7578 mL	9.5157 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 (475.78 mM); Clear solution; Need ultrasonic

### BIOLOGICAL ACTIVITY

#### Description

D-Serine ((R)-Serine), an endogenous amino acid involved in glia-synapse interactions that has unique neurotransmitter characteristics, is a potent co-agonist at the NMDA glutamate receptor. D-Serine has a cardinal modulatory role in major NMDAR-dependent processes including NMDAR-mediated neurotransmission, neurotoxicity, synaptic plasticity, and cell migration<sup>[1][2]</sup>.

#### IC<sub>50</sub> & Target

NMDA Receptor      Human Endogenous Metabolite

#### In Vitro

(R)-Serine is synthesized from L-Ser by serine racemase (SR) and degraded by D-amino acid oxidase (DAAO) and SR. Distribution of D-Ser and NMDAR as determined by chemical measurement and immunohistochemistry supports D-Ser as an endogenous coagonist acting on the glycine modulatory site of the NR1 subunits of the NMDAR<sup>[3]</sup>.

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

#### In Vivo

(R)-Serine (10 g/L; p.o.; throughout 8 weeks) regulates HFD induced weight gain<sup>[4]</sup>.

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

Animal Model:	Four week old male C57Bl/6 mice
Dosage:	10 g/L
Administration:	Oral administration (drinking water supplemented with 10 g/l D-serine); throughout 8 weeks
Result:	Showed strongly reduced weight gain during the first week of supplementation with paralleled weight gain to HFD fed mice, but no catch up thereafter.

#### CUSTOMER VALIDATION

- Research Square Preprint. 2022 Jan.

See more customer validations on [www.MedChemExpress.com](http://www.MedChemExpress.com)

#### REFERENCES

- [1]. Andrea R. Durrant, et al. D-Serine in Neuropsychiatric Disorders: New Advances.
- [2]. MacKay MB, et al. D-Serine: Potential Therapeutic Agent and/or Biomarker in Schizophrenia and Depression? Front Psychiatry. 2019 Feb 6;10:25.
- [3]. Dai X, et al. D-Serine made by serine racemase in Drosophila intestine plays a physiological role in sleep. Nat Commun. 2019 May 7;10(1):1986.
- [4]. Suwandhi L, et al. Chronic d-serine supplementation impairs insulin secretion. Mol Metab. 2018 Oct;16:191-202.

**Caution: Product has not been fully validated for medical applications. For research use only.**

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