D-Glutamic acid

Cat. No.: HY-100805

CAS No.: 6893-26-1

Molecular Formula: $C_5H_9NO_4$

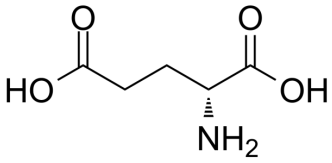
Molecular Weight: 147.13

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 : 13 mg/mL (88.36 mM; ultrasonic and adjust pH to 3 with NaOH)
DMSO : < 1 mg/mL (insoluble or slightly soluble)

Preparing Stock Solutions

Solvent / Mass / Concentration	1 mg	5 mg	10 mg
1 mM	6.7967 mL	33.9836 mL	67.9671 mL
5 mM	1.3593 mL	6.7967 mL	13.5934 mL
10 mM	0.6797 mL	3.3984 mL	6.7967 mL

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

In Vivo

1. Add each solvent one by one: PBS
Solubility: 10 mg/mL (67.97 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

D-glutamic acid, an enantiomer of L- glutamic acid, is widely used in pharmaceuticals and foods.

IC_{50} & Target

Microbial Metabolite | Human Endogenous Metabolite

In Vitro

Various d-amino acids, such as D-serine, D-aspartic acid (D-Asp), and D-glutamic acid (D-Glu) are widely found in mammals including human beings and they are now thought to be the candidates of novel physiologically active substances and/or biomarkers[1]. D-[Asp/Glu] (4 mg/mL) inhibits IgE binding (75%) to peanuts while D-Glu, D-Asp has no inhibitory effect. IgE is specific for D-[Asp/Glu] and may have the potential for removing IgE or reducing IgE binding to peanut allergens[2].
MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

D-glutamic acid is currently paid attention as a modulator of neuronal transmission and hormonal secretion. It is

metabolized only by D-aspartate oxidase in mammals[1]. After intraperitoneal injection, L-glutamate is catabolized via a-ketoglutarate, whereas D-glutamate is converted to n-pyrrolidone carboxylic acid. Carbon 2 of both D- and L-glutamate is converted in the cecum to the methyl carbon of acetate. Both rat liver and kidney catalyze the conversion of D-glutamic acid to n-pyrrolidone carboxylic acid[3].

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

PROTOCOL

Animal Administration [3]

Rats: Male albino rats are given injections of L- or D-glutamic acid-2-C^{14}, DL-glutamic acid-5-C^{14}, or D-glutamic acid-5-C^{14}. Injections by stomach tube or into the cecum are performed while the animals are under ether anesthesia. After the rats are killed, the “carcass” and liver glutamic acids are isolated, degraded, and assayed for radioactivity. “Carcass” refers to the entire animal, except liver, including the ished gastrointestinal tract[3].

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

CUSTOMER VALIDATION

- Molecules. 2023 Apr 11, 28(8), 3375.

See more customer validations on www.MedChemExpress.com

REFERENCES

[1]. Han H, et al. Changes in D-aspartic acid and D-glutamic acid levels in the tissues and physiological fluids of mice with various D-aspartate oxidase activities. J Pharm Biomed Anal. 2015 Dec 10;116:47-52.

[2]. Chung SY, et al. IgE binding to peanut allergens is inhibited by combined D-aspartic and D-glutamic acids. Food Chem. 2015 Jan 1;166:248-53.

[3]. Wilson W, et al. The metabolism of D- and L- glutamic acid in the rat. J Biol Chem. 1961 Feb;236:365-9.

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

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