

Product Data Sheet

Product Name: H-D-Glu-OH

Cat. No.: GA10629

Chemical Properties

Cas. No. 6893-26-1

Chemical Name (2R)-2-aminopentanedioic acid

SMILES C(CC(=O)O)C(C(=O)O)N

Formula $C_5H_9NO_4$

M.Wt 147.1

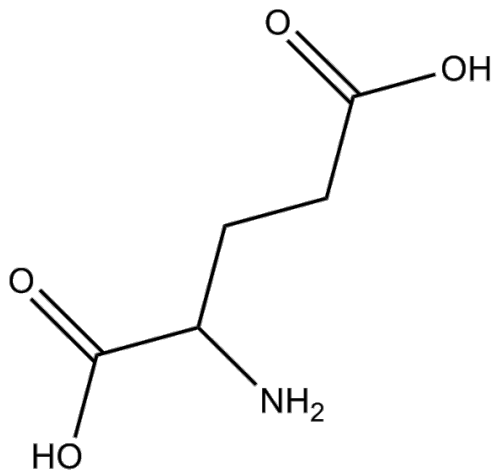
Solubility PBS (pH 7.2): 1 mg/ml

Storage Store at -20°C

General tips For obtaining a higher solubility, please warm the tube at 37 °C and shake it in the ultrasonic bath for a while. Stock solution can be stored below -20°C for several months.

Shipping Condition Evaluation sample solution: ship with blue ice. All other available size: ship with RT, or blue ice upon request.

Structure



Protocol

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

Tel: (909) 407-4943 Fax: (626) 353-8530 E-mail: tech@glpbio.com

Address: 10292 Central Ave. #205, Montclair, CA, USA

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Animal experiment: Rats: Male albino rats are given injections of L- or D-glutamic acid-2-C14, DL-glutamic acid-5-C14, or D-glutamic acid-5-C14. 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].

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.

Background

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

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].

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 α-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].

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