

Product Information

L-Glutamic acid Monosodium salt hydrate

Product Number **G 1626**
Store at Room Temperature

Product Description

Molecular Formula: $C_5H_8NNaO_4 \cdot xH_2O$

Molecular Weight: 169.1

CAS Number: 142-47-2

pK_a : 2.10 (α -COOH), 9.47 (α -NH₂), 4.07 (ω -COOH)¹

Specific Rotation: 24.2° - 25.5°

(80 mg/ml, 1.0 N HCl, 25 °C)²

Synonyms: glutamic acid monosodium salt hydrate, monosodium L-glutamate hydrate, sodium glutamate monohydrate²

L-Glutamic acid is one of the two amino acids that contains a carboxylic acid group in its side chain. Glutamic acid is commonly referred to as "glutamate", because its carboxylic acid side chain will be deprotonated and thus negatively charged in its anionic form at physiological pH. In amino acid metabolism, glutamate is formed from the transfer of amino groups from amino acids to α -ketoglutarate. It thus acts as an intermediary between ammonia and the amino acids *in vivo*. Glutamate is converted to glutamine via glutamine synthetase, and to γ -aminobutyric acid (GABA) via glutamate decarboxylase.^{3,4}

L-Glutamic acid is used in cell culture as a component of MEM non-essential amino acids solution (Product No. M 7145). Monosodium glutamate has been used in the culture of rat Nb2-SFJCD1 cells to study proliferation in the absence of 2-mercaptoethanol.⁵ The viability of lifarizine-treated cultured rat cerebrocortical neurons in the presence of sodium glutamate has been investigated.⁶ The use of sodium glutamate to purify tubulin by solid-phase ion exchange chromatography has been reported.⁷

Precautions and Disclaimer

For Laboratory Use Only. Not for drug, household or other uses.

Preparation Instructions

This product is soluble in water (100 mg/ml), yielding a clear, colorless solution.

References

1. Molecular Biology LabFax, Brown, T. A., ed., BIOS Scientific Publishers Ltd. (Oxford, UK: 1991), p. 29.
2. The Merck Index, 12th ed., Entry# 6337.
3. Biochemistry, 3rd ed., Stryer, L., W. H. Freeman (New York, NY: 1988), pp. 18, 496, 579, 1026.
4. Textbook of Biochemistry with Clinical Correlations, 5th ed., Devlin, T. M., ed., Wiley-Liss (New York, NY: 2002), pp. 97, 784, 790.
5. Gout, P. W., et al., Increased cystine uptake capability associated with malignant progression of Nb2 lymphoma cells. *Leukemia*, **11(8)**, 1329-1337 (1997).
6. May, G. R., et al., Neuroprotective profile of lifarizine (RS-87476) in rat cerebrocortical neurones in culture. *Br. J. Pharmacol.*, **114(7)**, 1365-1370 (1995).
7. Sackett, D. L., Rapid purification of tubulin from tissue and tissue culture cells using solid-phase ion exchange. *Anal. Biochem.*, **228(2)**, 343-348 (1995).

GCY/RXR 3/06

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