

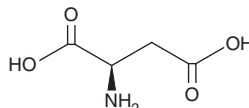
PRODUCT INFORMATION



D-Aspartic Acid

Item No. 33494

CAS Registry No.: 1783-96-6
Synonym: NSC 97922
MF: C₄H₇NO₄
FW: 133.1
Purity: ≥95%
Supplied as: A crystalline solid
Storage: -20°C
Stability: ≥4 years



Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Laboratory Procedures

D-Aspartic acid is supplied as a crystalline solid. Aqueous solutions of D-aspartic acid can be prepared by directly dissolving the crystalline solid in aqueous buffers. The solubility of D-aspartic acid in PBS (pH 7.2) is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

D-Aspartic acid is an amino acid and a precursor in the biosynthesis of NMDA.^{1,2} It is formed from L-aspartic acid by aspartate racemase and degraded by D-aspartate oxidase (DDO).^{3,4} It is also produced by degradation of dietary proteins or by intestinal microbiota.⁴ D-Aspartic acid binds to the L-glutamate site of ionotropic NMDA receptors ($K_i = 1.6 \mu\text{M}$).⁵ It increases the production of cAMP in rat synaptosomes when used at a concentration of 1 mM. D-Aspartic acid enhances electrically stimulated field excitatory postsynaptic potentials (fEPSPs) in rat hippocampal slices following administration in the drinking water at a concentration of 20 mM.⁶ It increases serum levels of growth hormone, luteinizing hormone, testosterone, and progesterone (Item No. 15876) in rats.⁷

References

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2. D'Aniello, S., Fisher, G.H., Topo, E., et al. N-methyl-D-aspartic acid (NMDA) in the nervous system of the amphioxus *Branchiostoma lanceolatum*. *BMC Neurosci.* **8**, 109 (2007).
3. D'Aniello, S., Somorjai, I., Garcia-Fernández, J., et al. D-Aspartic acid is a novel endogenous neurotransmitter. *FASEB J.* **25(3)**, 1014-1027 (2011).
4. Usiello, A., Di Fiore, M.M., De Rosa, A., et al. New evidence on the role of D-aspartate metabolism in regulating brain and endocrine system physiology: From preclinical observations to clinical applications. *Int. J. Mol. Sci.* **21(22)**, 8718 (2020).
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6. Errico, F., Nisticò, R., Palma, G., et al. Increased levels of D-aspartate in the hippocampus enhance LTP but do not facilitate cognitive flexibility. *Mol. Cell Neurosci.* **37(2)**, 236-246 (2008).
7. D'Aniello, A., Di Fiore, M.M., Fisher, G.H., et al. Occurrence of D-aspartic acid and N-methyl-D-aspartic acid in rat neuroendocrine tissues and their role in the modulation of luteinizing hormone and growth hormone release. *FASEB J.* **14(5)**, 699-714 (2000).

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the complete Safety Data Sheet, which has been sent via email to your institution.

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