

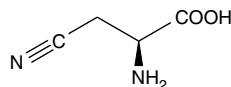
Product Information



β -cyano-L-Alanine

Item No. 10010947

CAS Registry No.: 6232-19-5
Formal Name: 3-cyano-L-alanine
Synonym: BCA
MF: C₄H₆N₂O₂
FW: 114.1
Purity: ≥98%
Stability: ≥2 years at -20°C
Supplied as: A crystalline solid



Laboratory Procedures

For long term storage, we suggest that β -cyano-L-alanine (BCA) be stored as supplied at -20°C. It should be stable for at least two years.

BCA is supplied as a crystalline solid. BCA is sparingly soluble in organic solvents such as ethanol, DMSO, and dimethyl formamide. For biological experiments, we suggest that organic solvent-free aqueous solutions of BCA be prepared by directly dissolving the BCA compound in aqueous buffers. The solubility of BCA in PBS, pH 7.2, is approximately 10 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Hydrogen sulfide (H₂S) is a naturally-occurring gasotransmitter with vasodilator and inflammatory modulating activity.^{1,2} H₂S is synthesized naturally in a range of mammalian tissues principally by the activity of two enzymes, cystathionine γ lyase (CSE) and cystathionine β synthetase (CBS). BCA is a reversible inhibitor of the H₂S-synthesizing enzyme CSE.³ BCA blocks H₂S synthesis in rat liver preparations with an IC₅₀ value of 6.5 μ M and increases blood pressure in anaesthetized rats induced with hemorrhagic shock by inhibiting endogenous H₂S synthesis.⁴ BCA at 50 mg/kg blocked both L-cysteine- and LPS-induced hyperalgesia in rats.⁵

References

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- Pfeffer, M. and Ressler, C. β -cyanoalanine, an inhibitor of rat liver cystathionase. *Biochem. Pharmacol.* **16**, 2299-2308 (1967).
- Mok, Y.-Y.P., Atan, M.S.B.M., Ping, C.Y., *et al.* Role of hydrogen sulphide in haemorrhagic shock in the rat: Protective effect of inhibitors of hydrogen sulphide biosynthesis. *Br. J. Pharmacol.* **143**, 881-889 (2004).
- Kawabata, A., Ishiki, T., Nagasawa, K., *et al.* Hydrogen sulfide as a novel nociceptive messenger. *Pain* **132**, 74-81 (2008).

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