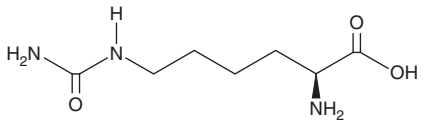
PRODUCT INFORMATION

Homocitrulline

Item No. 34980

CAS Registry No.: 1190-49-4
Formal Name: N^6-(aminocarbonyl)-L-lysine
Synonyms: ε-Carbamyllysine, L-Epsilon-Amino-Carbamoyl-Lysine, L-Homocitrulline, NSC 27428
MF: $C_7H_{15}N_3O_3$
FW: 189.2
Purity: ≥95%
Supplied as: A 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

Homocitrulline is supplied as a solid. A stock solution may be made by dissolving the homocitrulline in the solvent of choice, which should be purged with an inert gas. Homocitrulline is slightly soluble in ethanol, DMSO, and dimethyl formamide.

Further dilutions of the stock solution into aqueous buffers or isotonic saline should be made prior to performing biological experiments. Ensure that the residual amount of organic solvent is insignificant, since organic solvents may have physiological effects at low concentrations. Organic solvent-free aqueous solutions of homocitrulline can be prepared by directly dissolving the solid in aqueous buffers. The solubility of homocitrulline in PBS (pH 7.2) is approximately 3 mg/ml. We do not recommend storing the aqueous solution for more than one day.

Description

Homocitrulline is an amino acid and a product of carbamylation, a post-translational modification of proteins and amino acids.[1,2] It is formed by the adduction of isocyanic acid, a product of urea degradation or thiocyanate oxidation induced by myeloperoxidase (MPO), to the ε-amino group of lysine residues.[2] Protein-bound homocitrulline levels are increased in the aortas of transgenic *Ldlr*$^{-/-}$ mice expressing human MPO fed a high-fat atherogenic diet.[3] Intra-articular injection of homocitrulline-containing peptides induce the development of arthritis in mice.[4] Homocitrulline-containing peptide and anti-homocitrulline antibody levels are increased in whole blood from patients with erosive rheumatoid arthritis compared to patients with non-erosive rheumatoid arthritis.

References

1. Shi, J., Knevel, R., Suwannalai, P., *et al.* Autoantibodies recognizing carbamylated proteins are present in sera of patients with rheumatoid arthritis and predict joint damage. *Proc. Natl. Acad. Sci. USA* **108(42)**, 17372-17377 (2011).
2. Verbrugge, F.H., Tang, W.H.W., and Hazen, S.L. Protein carbamylation and cardiovascular disease. *Kidney Int.* **88(3)**, 474-478 (2015).
3. Wang, Z., Nicholls, S.J., Rodriquez, E.R., *et al.* Protein carbamylation links inflammation, smoking, uremia and atherogenesis. *Nat. Med.* **13(1)**, 1176-1184 (2007).
4. Mydel, P., Wang, Z., Brisslert, M., *et al.* Carbamylation-dependent activation of T cells: A novel mechanism in the pathogenesis of autoimmune arthritis. *J. Immunol.* **184(12)**, 6882-6890 (2010).

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