

L- Cystine

(From non-animal source)
Cell Culture Tested

Product Code: TC070

Product Description :

Molecular Weight: 240.3

Molecular Formula: $C_6H_{12}N_2O_4S_2$

CAS No.: 56-89-3

Synonym: R-(R*,R*)-3,3'-dithiobis(2-aminopropanoic acid), Dicysteine, β,β' -dithiodialanine

L-Cystine is a dimeric non-essential amino acid formed by oxidation of two cysteine residues, joined via disulfide covalent linkage. Reduction of L-Cystine forms L-Cysteine and thus, both these forms are inter-convertible.

L-Cystine is used as a major component in wide range of cell culture media including classical and serum-free media. Some major functions of it in cell culture involves post-translational modifications that contribute to protein folding. Cystine is also responsible for tertiary structures of most of the cellular proteins. In several cell types, Cystine is synthesized from methionine and glucose. In spite of this, the cell culture medium needs a minimal amount of this amino acid to maintain its intracellular pool for cell growth.

In the culture medium, Cystine gets reduced to Cysteine and the latter acts as a rate-limiting agent during glutathione synthesis. Glutathione catalyses conversion of dehydroascorbic acid to ascorbic acid, which acts as an anti-oxidant and prevents lipid peroxidation. L-Cysteine is metabolized by many cells to produce hypotaurine and taurine. These two molecules detoxify the culture media by reacting with free hydroxyl groups and hypochlorous acid generated in the media. L-Cysteine formed from L-Cystine act as transporters of metal-ion linked molecules (such as cytochrome) across the cell membrane.

Directions :

Preparation instructions:

For cell culture applications, L-Cystine solutions can be prepared as per required concentrations in 1M hydrochloric acid. Solutions can be sterilized by filtering through sterile acid-resistant membrane filters like PTFE (polytetrafluoroethylene), GFP (glass-fiber prefilter), PES (polyethersulfone), and PVDF (polyvinylidene fluoride) with a porosity of 0.22 micron or less.

Quality Control:

Appearance

White powder.

Solubility

Clear colorless solution at 1gm in 100ml of 1M hydrochloric acid .

pH of 0.04% solution in water

4.0 - 7.0

Specific optical rotation [alpha] 20/D

-218° to -224°

Chloride (Cl)

NMT 0.02%

Ammonium (NH₄)

NMT 0.02%

Sulfate (SO₄)

NMT 0.02%

Iron (Fe)

NMT 0.001%

Heavy metal (as Pb)

NMT 0.001%

Arsenic (As)

NMT 0.0001%

Residue on Ignition

NMT 0.1%

Loss on drying (105°C; 1 h)

NMT 0.2%

Other amino acids

Conforms

Assay

NLT 98.50%

Cell Culture Test

Passes

Storage and Shelf Life:

Store powder at room temperature in air tight containers and away from bright light.

Use before expiry date given on the product label.

Revision : 0 / 2015

Disclaimer :

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