

L-Histidine

(From non-animal source)

Cell Culture Tested

Product Code: TC076

Product Description :

Molecular Weight: 155.2

Molecular Formula: $C_6H_9N_3O_2$

CAS No.: 71-00-1

Synonym:(S)-a-amino-1H-imidazole-4-propanoic acid, glyoxaline-5-alanine, His, H

L-Histidine is positively charged hydrophilic, essential α -amino acid coded by codons CAU and CAC. It is chemically basic in nature. It carries positively charged imidazole functional group.

It is used as a major component in wide range of cell culture media including classical and serum-free media. It plays many important roles in cell culture. Some of them are mentioned below:

1. Protein synthesis and protein folding:

Like all other amino acids, L-Histidine also acts as a substrate for protein synthesis during translation process. Histidine's side chain allows it to act as both a base and an acid, both donating and accepting protons, which can be of considerable importance in its role as part of proteins. Hence it is a proteinogenic amino acid.

2. Nucleic acid synthesis:

Biosynthesis of Histidine is inherently linked to the pathways of nucleotide formation. Thus it participates in synthesis of nucleic acids also.

3. As a catalyzer:

Because of presence of imidazole ring, Histidine is a nucleophile and a good acid/base catalyzer. Histidine residues are found in enzyme active sites.

4. Precursor for synthesis of carnosine:

Histidine acts as a precursor for synthesis of carnosine, a dipeptide of amino acids beta-alanine and histidine. Carnosine exerts anti-oxidant effect and protects cellular proteins by preventing oxidation of sugars. It also binds with potentially harmful carbonyl groups that attack and bind with proteins imbedded in cell membrane.

Directions :

Preparation instructions:

L-Histidine is soluble in water (100mg/ml) and 0.5M HCl (50mg/ml)

Quality Control:

Appearance

White to offwhite crystalline powder.

Solubility

Clear colorless solution at 1gm in 100ml of water .

pH of 2% solution water

7.00 -8.50

Specific rotation α_D^{20}

+11.8° to +12.8°

Chloride (Cl)

NMT 0.02%

Ammonium (NH₄)

NMT 0.1%

Sulphate (SO₄)

NMT 0.02%

Iron (Fe)

NMT 0.001%

Heavy metals

NMT 0.001%

Arsenic (As)

NMT 0.0001%

Other amino acids

NMT 0.5%

Assay

NLT 98.5%

Cell Culture Test

Passes

Storage and Shelf Life:

Store at 10-30°C away from bright light

Shelf life is 36 months.

Use before expiry date given on the product label.

Revision : 1 / 2011

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