L-Histidine monohydrochloride, monohydrate

(From non-animal source)
Cell Culture Tested

Product Code: TC077

Product Description:

- Molecular Weight: 209.6
- Molecular Formula: C₆H₉N₃O₂•HCl•H₂O
- CAS No.: 5934-29-2
- Synonym: (S)-a-amino-1H-imidazole-4-propanoic acid hydrochloride, glyoxaline-5 alanine hydrochloride, His, H

L-Histidine monohydrochloride monohydrate is chloride salt of L-Histidine. L-Histidine is positively charged hydrophilic, essential ε-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 as L-Histidine. 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 catalyst:**
   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 hydrochloride monohydrate is soluble in water (100mg/ml).

Quality Control:

- **Appearance**
  White to offwhite crystalline powder.

- **Solubility**
  Clear colorless solution at 10gm in 100ml of water.

- **pH of 10% solution in water**
  3.50 - 4.50

- **Specific rotation [alpha]20/D**
  +8.9° to +9.5°

- **Chloride (Cl)**
  NMT 0.02%

- **Ammonium (NH4)**
  NMT 0.02%

- **Sulphate (SO4)**
  NMT 0.02%

- **Iron (Fe)**
  NMT 0.001%

- **Heavy metals**
  NMT 0.001%

- **Arsenic (As)**
  NMT 0.0001%

- **Loss on drying**
  NMT 0.2%

- **Assay**
  NLT 99%

Cell Culture Test

Passes
Storage and Shelf Life:
Store at 10-30°C away from bright light.
Shelf life is 48 months.
Use before expiry date given on the product label.