holo Transferrin bovine
Cell Culture Tested

Product Code: TC216

Product Description:
CAS No.: 11096-37-0
Synonym: Siderophilin, iron-saturated, Siderophilin

Transferrin is a plasma protein that transports iron through the blood to the liver, spleen and bone marrow. Transferrin is a glycoprotein that binds iron reversibly. Transferrin has the highest turnover rate of iron binding although only 1% of total body iron binds to transferrin. Holo transferrin is synthesized from apo-Transferrin (iron-free) that initially binds iron at the C-terminus, followed by iron binding at the N-terminus to form Holo transferrin (diferric-Transferrin). Holo-Transferrin interacts with the type I Transferrin receptor (TfR) on the surface of cells where it is internalized into acidified endosomes. Liver is the main source of manufacturing transferrin. Transferrin has two specific high-affinity Fe(III) binding sites. The affinity of transferrin for Fe(III) is extremely high but decreases if the pH decreases below neutrality.

Transferrin transports iron when it is loaded with iron and encounters a transferrin receptor on the surface of a cell (e.g., to erythroid precursors in the bone marrow). Then it binds to it and as a consequence, is transported into the cell in a vesicle by receptor-mediated endocytosis. Transferrin releases iron when the pH of vesicle is reduced by hydrogen pumps. The receptor is then transported through the endocytic cycle back to the cell surface, ready for another round of iron uptake. Each transferrin molecule has the ability to carry two iron ions in the ferric form (Fe3+).

In cell culture transferrin forms a major serum-free medium supplement. Transferrin is the physiologically appropriate component for providing iron to cells in culture. The delivery of iron using transferrin has historically been part of an iron management program in biomanufacturing systems for production of therapeutic proteins, such as monoclonal antibodies. Delivery of iron to human cells by bovine transferrin has been studied. A study on purification of an expressed insect transferrin from cell culture media using high-capacity Ni(2+)-dipicolylamine gel has been done. Co-migration and internalization of transferrin and its receptor on K562 cells has been studied. A study has been done on how serotonin agonists increase transferrin levels via activation of 5-HT1c, receptors in choroid plexus epithelium.

Activity:
One Collagen Digestion Unit liberates peptides from collagen equivalent in ninhydrin color to 1.0mmole of leucine in 5hr at pH 7.4 at 37°C in the presence of calcium ions.

One Clotsrripsain Unit hydrolyzes 1.0mmole of (N-Q-benzoyl-L-arginine ethyl ester (BAEE) per min at pH 7.6 at 25°C in the presence of dithiothreitol (DTT).

One Tryptic unit is that enzyme activity which hydrolyzes 1.0mmole of (N-Q-benzoyl-L-arginine ethyl ester (BAEE) in one min at 25°C and pH 7.6.

One Protease Unit hydrolyzes Casein to produce color equivalent to 1.0mmole tyrosine per 5 hr at pH 7.5 at 37°C.

Directions:
Preparation Instructions:
holo-Transferrin Bovine powder is soluble in water (30mg/ml). holo-Transferrin Bovine solutions are sterilized by filtering through a sterile membrane filter of porosity 0.22microns or less.

Quality Control:
Appearance
Red to brown powder.

Solubility
Clear light brown solution at 0.3 gm in 10 ml of water.

pH of 3 % solution in water
7.00 -8.00

Total Protein (anhydrorus)by Kjeldal Nitr
NLT 95%

Cell Culture Test
Passes

Please refer disclaimer overleaf
Storage and Shelf Life:
Store at 2-8°C away from bright light.
Sterile filtered solutions of holo transferrin remain stable for
5-10 days at 2-8°C.
Shelf life is 36 months.
Use before expiry date given on the product label.

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