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Technical Datasheet

Human Recombinant Insulin

Cell Culture Tested

Product Code: CF034

Product Description:

Source: *E.coli*

Molecular Weight: ~6 kDa

Human insulin is a dimeric polypetide hormone secreted by pancreatic cells.

The primary function of insulin is to regulate glucose uptake by recruiting membrane glucose transporter Glut-4 to cell surface of muscles and fat cells. Other functions of insulin involves memory development and cognitive behaviour. The amino acid sequence of insulin is well conserved among species. Bovine insulin differs from human insulin in only three amino acid residues. Bovine insulin has often been used as growth supplement in cells culture at 1-10 µg/ml. Mature human insulin is generated by removal of signal sequence and propeptide. It is a small globular protein with in two polypeptide chains, chain A and B linked by two disulfide bonds in addition to one disulfide loop in chain A. Recombinant insulin is a monomeric protein of ~6 kDa consisting of 51 amino acid residues.

CF034 is Human recombinant insulin expressed in *E.coli*, filtered through 0.2 micron filter and lyophilized with no additives.

Directions:

1. Centrifuge the vial prior to opening.
   Note: Protein pellet may not be visible in the vial because protein is lyophilized without any carrier protein. As a result, small amount of protein get deposited on the inner walls of the vial during lyophilization in form of a thin and invisible film. Centrifugation causes deposition of any protein sticking to the cap or sides to settle at the vial bottom.
2. Surface sterilize using 70% isopropyl alcohol and take it into laminar air flow cabinet.
3. Aseptically reconstitute the lyophilized powder in sterile 10mM HCl
   Note: Do not vortex.
4. Upon reconstitution, it can be stored in working aliquots. Refer the storage and shelf life section for details. Avoid repeated freeze-thaw cycles.

Quality Control:

Appearance

Lyophilized powder

Solubility

Soluble at 10mg per ml in 10mM HCl

Purity (by SDS-PAGE and HPLC analysis)

NLT 95%

Endotoxin Content

Less than 1EU/µg

Biological Activity

Specific activity: NLT 30 IU/mg.

Storage and Shelf Life:

Shelf life of human recombinant insulin depends on the storage temperature and the form in which it is stored. Refer the table given below for recommended storage time of different forms of human recombinant insulin at different storage temperatures.

Product form	Temperature	Storage time
Lyophilized	-20°C	2 years
Reconstituted	2°C to 8°C	1 month
	-20°C	6 months

Once reconstituted, aliquot the solution into smaller volumes and freeze for future use. Repeated freezing and thawing of the reconstituted frozen solution should be avoided as it causes denaturation of protein to some extent.