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Cardiotrophin-1, rat recombinant (rrCT-1)

Catalog No: 97636
Lot No: XXXXX
Source: *E. coli*
Synonyms: Cardiotrophin-1, CT-1, Ctf1

Background

Cardiotrophin 1 (CT-1) is a 201 amino acid member of the interleukin-6 superfamily. It was identified by its ability to induce hypertrophic response in cardiac myocytes. CT-1 mRNA levels were found both in cardiac myocytes and in cardiac nonmyocytes. CT 1 was also detected in abundance in normal adult human lung and was expressed in both fetal and adult airway smooth muscle cells. CT 1 activates gp130 dependent signaling and stimulates the Janus kinase/signal transducers and activators of transcription (JAK/STAT) pathway to transduce hypertrophic and cytoprotective signals in cardiac myocytes. CT 1 has also a neurotrophic function. CTF1 deficiency causes increased motoneuron cell death in spinal cord and brainstem nuclei of mice during a period between embryonic day 14 and the first postnatal week. Moreover, CT-1 is a hepatocyte survival factor that efficiently reduces hepatocellular damage in animal models of acute liver injury. Cardiotrophin 1 expression is augmented after hypoxic stimulation and it can protect cardiac cells when added either prior to simulated ischaemia or at the time of reoxygenation following simulated ischaemia. Cardiotrophin 1 can induce expression of the protective heat shock proteins (hsps) in cardiac cells. Cardiotrophin-1 increased ventricular expression of ANP, brain natriuretic peptide (BNP) and angiotensinogen mRNA. Cardiotrophin 1 levels were significantly elevated in patients with heart failure, patients with dilatative cardiomyopathy, moderate/severe mitral regurgitation, stable and unstable angina and after acute myocardial infarction.

Description

Cardiotrophin-1 Rat Recombinant produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 203 amino acids and having a molecular mass of 21.4 kDa. The CT-1 Rat is purified by proprietary chromatographic techniques.

Physical Appearance

Sterile filtered white lyophilized (freeze-dried) powder.

Formulation

Lyophilized from a 0.2 µm filtered concentrated solution in PBS, pH 7.4.

Solubility

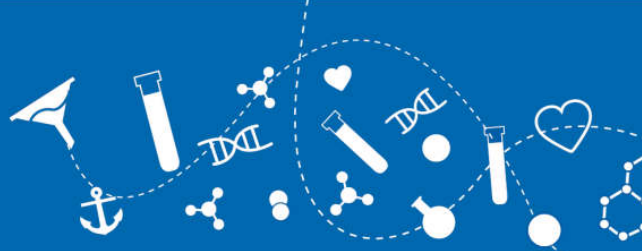
It is recommended to reconstitute the lyophilized CT-1 in sterile 4 mM HCl not less than 100 µg/ml, which can then be further diluted to other aqueous solutions.

Stability

Lyophilized Cardiotrophin-1 Rat although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution CT-1 Rat should be stored at 4°C between 2-7 days and for future use below -18°C. Please prevent freeze-thaw cycles.

Purity

Greater than 95.0% as determined by SDS-PAGE and HPLC analyses.



Amino Acid Sequence

MSQREGSLED HQTSSFSFL PHLEAKIRQT HNLARLLTKY ADQLLEEVQ QGEPFGLPG FSPRLPLAG LSGPAPSHAG
LPVSELRQD AAALSALPAL LDAVRRRQAE LNPRAPRLLR SLEDAARQVR ALGAAVETVL AALGAAARGP VPEPVATSAL
FTSNSAAGVF SAKVLGLHVC GLYGEWVSRT EGD LGQLVPG GVA

Activity

The ED50 as determined by the dose-dependent proliferation of TF-1 cells was found to be < 0.5 ng/ml, corresponding to a specific activity of > 2.0 x 10⁶ units/mg.

Usage

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