



Cardiotrophin-1, mouse recombinant (rmCT-1)

Catalog No: 97426
Lot No: XXXXX
Source: *E. coli*
Synonyms: CTF1, CT1, CT-1, Cardiophin 1

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. Cardiophin 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

CT-1 mouse recombinant produced in *E. coli* is a single, non-glycosylated, polypeptide chain containing 202 amino acids and having a molecular mass of 21.3 kDa. CT-1 mouse 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 to a concentration of 0.1-0.5 mg/ml. Stock solutions should be apportioned into working aliquots and stored at -20°C. Further dilutions should be made in appropriate buffered solutions.

Stability

Lyophilized CT-1, although stable at room temperature for 3 weeks, should be stored desiccated below -18°C. Upon reconstitution CT 1 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 98.0% as determined by SDS-PAGE.

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Amino Acid Sequence

SQREGSLEDH QTSSISFLP HLEAKIRQTH NLARLLTKYA EQLLEEVVQQ QGEPFGLPGF SPPRLPLAGL SGPAPSHAGL
PVSERLRQDA AALSVPALL DAVRRRQAEI NPRAPRLLRS LEDAARQVRA LGAAVETVLA ALGAAARGPG PEPVTVATLF
TANSTAGIFS AKVLGFHVCG LYGEWVS RTE GDLGQLVPGG VA

Activity

Fully biologically active when compared to standard. The ED50 as determined by the dose-dependent proliferation of TF-1 cells was <1.0 ng/ml, corresponding to a specific activity of >1,000,000 units/mg.

Usage

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