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**Product Data Sheet**


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Product Name: CTF1 Human  
 Cat. No.: GP20146  
 Batch No.: 1

**Product Data**

Purity	>98%	Source	Escherichia Coli.
Physical Appearance	solid	Shipping Condition	Shipped at Room temp.
Synonyms	CTF1; CT1; CT-1; Cardiophin 1; Cardiotrophin-1.		
Amino Acid Sequence	MSRREGSLED PQT DSSV SLL PHLEAKIRQT HSLAHL LTKY AEQL LQEYVQ LQDPFGLPS FSPRLPVAG LSAPAPSHAG LPVHERLR LD AAAL AALPPL L DAVCRRQAE LNPRAPRLLR RLEDAARQAR ALGAAVEALL AALGAANRGP RAEP PAATAS AASATGVFPA KVLGLRVCGL YREWLSRTEG DLGQLLP GGS A.		
Solubility	It is recommended to reconstitute the lyophilized CTF1 in sterile 4mM HCl not less than 100µg/ml, which can then be further diluted to other aqueous solutions.		
Formulation	CTF-1 protein was lyophilized from a 0.2µm filtered concentrated solution in 30% Acetonitrile and 0.1% TFA.		

**Introduction**

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

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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.

### Biological Activity

The ED50 as determined by a cell proliferation assay using human TF-1 cells is less than 1.0 ng/ml, corresponding to a specific activity of  $> 1.06 \times 10^6$  IU/mg.

### Stability

Lyophilized CTF1 although stable at room temperature for 3 weeks, should be stored desiccated below  $-18^{\circ}\text{C}$ . Upon reconstitution CTF-1 should be stored at  $4^{\circ}\text{C}$  between 2-7 days and for future use below  $-18^{\circ}\text{C}$ . For long term storage it is recommended to add a carrier protein (0.1% HSA or BSA). Please prevent freeze-thaw cycles.

### Background

Cardiotrophin-1 Human Recombinant produced in E.coli is a single, non-glycosylated, polypeptide chain containing 201 amino acids and having a molecular mass of 21.2kDa. The CTF1 is purified by proprietary chromatographic techniques.

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