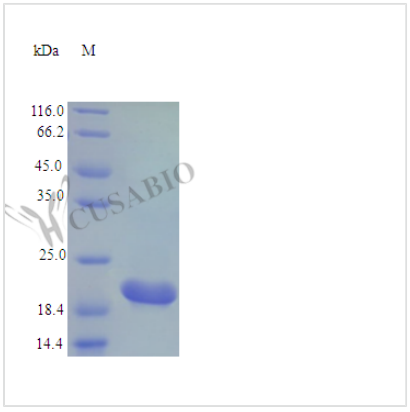
Recombinant Rat Cardiotrophin-1 protein (Ctf1) (Active)

Product Code	CSB-AP000211RA
Abbreviation	Recombinant Rat Ctf1 protein (Active)
Uniprot No.	Q63086
Form	Lyophilized powder
Storage Buffer	Lyophilized from a 0.2 μm filtered 20 mM PB, pH 7.4, 150mM NaCl
Product Type	Other
Immunogen Species	Rattus norvegicus (Rat)
Biological Activity	Fully biologically active when compared to standard. The ED50 as determined by a cell proliferation assay using human TF-1 cells is less than 0.5 ng/ml, corresponding to a specific activity of >2.0x10^6 IU/mg.
Purity	>95% as determined by SDS-PAGE.
Sequence	MSQREGSLED HQTDSSFSFL PHLEAKIRQT HNLARLLTKY ADQLLEEYVQ QQGEPFGLPG FSPPRLPLAG LSGPAPSHAG LPVSERLRQD AAALSALPAL LDAVRRRQAE LNPRAPRLLR SLEDAARQVR ALGAAVETVL AALGAAARGP VPEPVATSAL FTSNSAAGVF SAKVLGLHVC GLYGEWVSRT EGDLGQLVPG GVA
Research Area	Immunology
Source	E.coli
Target Names	Ctf1
Expression Region	1-203aa
Notes	Repeated freezing and thawing is not recommended. Store working aliquots at 4°C for up to one week.
Tag Info	Tag-Free
Mol. Weight	21.4 kDa
Protein Length	Full Length
PubMed ID	8604995; 15489334
Image	



Description

This recombinant Rat Cardiotrophin-1 protein (Ctf1) comes from E. coli production and represents the complete protein sequence, spanning amino acids 1-203. The protein lacks any tags and shows purity greater than 95% when analyzed by SDS-PAGE. It maintains full biological activity, with an ED50 below 0.5 ng/ml in human TF-1 cell proliferation assays—this translates to a specific activity exceeding 2.0 × 10^6 IU/mg. Endotoxin levels stay under 1.0 EU/μg, as measured using the LAL method.

Cardiotrophin-1 appears to function as a cytokine in cell signaling networks, particularly within the interleukin-6 family. It likely plays an important role in how cardiac muscle cells develop and function. The protein seems to activate the JAK/STAT signaling pathway, which may be significant for researchers studying cellular growth and how cells differentiate. This protein could prove valuable for investigations into the molecular mechanisms that drive cardiac physiology and disease.

Potential Applications

Note: The applications listed below are based on what we know about this protein's biological functions, published research, and experience from experts in the field. However, we haven't fully tested all of these applications ourselves yet. We'd recommend running some preliminary tests first to make sure they work for your specific research goals.

1. Cell Proliferation and Viability Assays

Researchers can use this recombinant rat Ctf1 protein to examine how different cell lines respond to proliferation signals, especially those that express gp130 and related cytokine receptors. The proven biological activity—with that ED50 below 0.5 ng/ml in TF-1 cells—gives scientists a solid foundation for dose-response experiments. Studies might explore how Ctf1 affects the growth of cardiomyocytes, neural cells, and various hematopoietic cell lines. That high specific activity (>2.0 × 10? IU/mg) should help ensure consistent, reproducible results in proliferation assays.

2. Cytokine Receptor Binding and Signaling Studies

This biologically active Ctf1 protein may serve as a useful tool for investigating

how cytokines interact with their receptors, particularly the gp130 receptor complex and associated signaling pathways. Scientists could incorporate this protein into binding competition assays to study receptor affinity and specificity. Since the protein shows activity in TF-1 cells, it probably activates downstream signaling cascades—making it potentially suitable for examining JAK-STAT pathway activation and other cytokine-mediated signaling mechanisms. The absence of fusion tags eliminates possible interference in receptor binding studies.

3. Antibody Development and Validation

This purified recombinant rat Ctf1 protein could work as an antigen for creating Ctf1-specific antibodies in research settings. Its high purity (>95%) and complete sequence (1-203aa) appear well-suited for immunization protocols and antibody screening assays. Scientists might use this protein in ELISA-based assays to confirm antibody specificity and measure binding affinities. The minimal endotoxin content (<1.0 EU/μg) helps ensure that immune responses target the Ctf1 protein specifically rather than bacterial contaminants.

4. Comparative Species Studies and Cross-Reactivity Analysis

The rat-derived Ctf1 protein opens up possibilities for comparative studies investigating species-specific differences in cytokine activity and receptor binding. Researchers could compare how rat Ctf1 behaves biologically versus human or mouse versions, using that established TF-1 cell proliferation assay as a reference point. This protein allows for cross-species reactivity studies to see whether rat Ctf1 can activate cytokine receptors from other species. Such work might prove valuable for understanding how cytokine signaling pathways have evolved and for validating animal models in preclinical research.

5. Protein-Protein Interaction Studies

Scientists can apply this biologically active, tag-free rat Ctf1 protein in biochemical assays designed to study protein-protein interactions with potential binding partners or regulatory molecules. The protein may work well in pull-down assays, surface plasmon resonance, or other biophysical techniques for identifying and characterizing molecular interactions. Its demonstrated biological activity suggests proper protein folding—which seems essential for meaningful interaction studies. The high purity and low endotoxin levels make it potentially suitable for sensitive biochemical analyses where contaminants might interfere with results.

Endotoxin	Less than 1.0 EU/μg as determined by LAL method.
Reconstitution	We recommend that this vial be briefly centrifuged prior to opening to bring the contents to the bottom. Please reconstitute protein in deionized sterile water to a concentration of 0.1-1.0 mg/mL.We recommend to add 5-50% of glycerol (final concentration) and aliquot for long-term storage at -20°C/-80°C. Our default final concentration of glycerol is 50%. Customers could use it as reference.
Shelf Life	The shelf life is related to many factors, storage state, buffer ingredients,

storage temperature and the stability of the protein itself.
Generally, the shelf life of liquid form is 6 months at -20°C/-80°C. The shelf life of lyophilized form is 12 months at -20°C/-80°C.