Recombinant Human CNTFR/CNTF Complex

Catalog Number: 10283-CC

DESCRIPTION

Source

Human embryonic kidney cell, HEK293-derived human CNTFR/CNTF Complex protein

Human CNTFR (Gln23-Ser342) Accession # P26992	GGGSGGGSGGGS	Human CNTF (Met1-Met200) Accession # P26441

N-terminus C-terminus

N-terminal Sequence Analysis	Gln23 inferred from deblocking revealing Arg24
Predicted Molecular Mass	59 kDa

SPECIFICATIONS

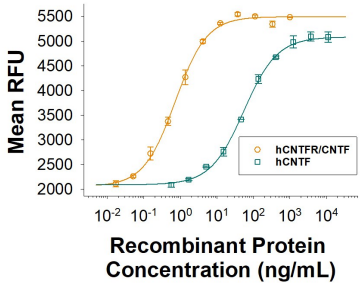
SDS-PAGE	74-85 kDa, under reducing conditions
Activity	Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura, T. *et al.* (1989) J. Cell Physiol. **140**:323. The ED_{50} for this effect is 0.25-1.5 ng/mL.
Endotoxin Level	<0.10 EU per 1 µg of the protein by the LAL method.
Purity	>95%, by SDS-PAGE visualized with Silver Staining and quantitative densitometry by Coomassie® Blue Staining.
Formulation	Lyophilized from a 0.2 µm filtered solution in PBS with Trehalose. See Certificate of Analysis for details.

PREPARATION AND STORAGE

Reconstitution	Reconstitute at 200 µg/mL in PBS.
Shipping	The product is shipped at ambient temperature. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage	**Use a manual defrost freezer and avoid repeated freeze-thaw cycles.** • 12 months from date of receipt, -20 to -70 °C as supplied. • 1 month, 2 to 8 °C under sterile conditions after reconstitution. • 3 months, -20 to -70 °C under sterile conditions after reconstitution.

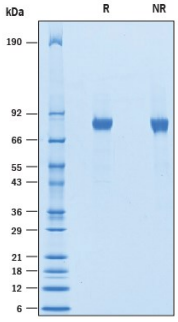
DATA

Bioactivity



Recombinant Human CNTFR/CNTF Complex Protein Bioactivity Recombinant Human CNTFR/CNTF Complex (Catalog # 10283-CC) stimulates proliferation of the TF-1 human erythroleukemic cell line. The ED_{50} for this effect is 0.25-1.5 ng/mL. The Recombinant Human CNTFR/CNTF Complex has up to 100-fold greater activity than Recombinant CNTF alone (Catalog # Catalog # 257-NT).

SDS-PAGE



Recombinant Human CNTFR/CNTF Complex Protein SDS-PAGE 2 µg/lane of Recombinant Human CNTFR/CNTF Complex was resolved with SDS-PAGE under reducing (R) and non-reducing (NR) conditions and visualized by Coomassie® Blue staining, showing bands at 74-85 kDa.

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BACKGROUND

Human CNTF (ciliary neurotrophic factor) encodes a 200 amino acid polypeptide that lacks a signal sequence. It shares 83% and 84% sequence identity with the mouse and rat homologs, respectively. CNTF is known to be expressed by Schwann cells, astrocytes and T cells (1). CNTF is structurally related to IL-6, IL-11, LIF and OSM. All of these four helix bundle cytokines share gp130 as a signal-transducing subunit in their receptor complexes (2, 3). Engagement of CNTF with CNTFR alpha, LIFR, and gp130 on CD4 T cells has been shown to increase the number of IFN-γ producing differentiated cells. IFN-γ being a mediator of IFN-β suggests CNTF's role in therapeutic effects of IFN-β in multiple sclerosis (1, 4). CNTFR alpha contains a 22 amino acid signal peptide, 320 amino acids mature domain and a 30 amino acids propeptide. The mature human CNTFR alpha contains one Ig-like C2-type domain and two Fibronectin type III domains. CNTFR alpha differs from other cytokine receptors in that it lacks transmembrane and cytoplasmic domains and is anchored to cell membranes by a glycosylphosphatidylinositol (GPI) linkage (5). Mature human CNTFR alpha shares 98% and 96% sequence identity with its mouse and rat homologs in the mature domain, respectively. Similar to other GPI-linked proteins, soluble CNTFR alpha (CNTF sR alpha) can be released from the cell surface by phosphatidylinositol-specific phospholipase C. CNTF sR alpha can be released from skeletal muscle in response to peripheral nerve injury and high concentrations of CNTF sR alpha have also been detected in human cerebrospinal fluid (4). CNTF sR alpha binds CNTF in solution and the complex can act on cells that express only LIF R beta and gp130 but not CNTFR alpha (4, 6).

References:

1. Tormo, A.J. *et al.* (2012) Cytokine **60**:65.
2. Sleeman, M.W. *et al.* (2000). Pharma Acta Helv. **74**:265.
3. Bravo J. *et al.* (2000) EMBO J. **19**:2399
4. Pasquin, S. *et al.* (2015) Cytokine Growth Factor **26**:507.
5. Davis, S. *et al.* (1991). Science. **253**:59.
6. Pasquin, S. *et al.* (2016) Cytokine **82**:122.

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