

Animal-Free CNTF Protein, Mouse (His)

Cat. No.:	HY-P74242AF
Synonyms:	Ciliary neurotrophic factor; CNTF
Species:	Mouse
Source:	E. coli
Accession:	P51642 (M1-M198)
Gene ID:	12803
Molecular Weight:	Approximately 23.40 kDa

PROPERTIES

AA Sequence	<p> M A F A E Q S P L T L H R R D L C S R S I W L A R K I R S D L T A L M E S Y V K H Q G L N K N I S L D S V D G V P V A S T D R W S E M T E A E R L Q E N L Q A Y R T F Q G M L T K L L E D Q R V H F T P T E G D F H Q A I H T L T L Q V S A F A Y Q L E E L M A L L E Q K V P E K E A D G M P V T I G D G G L F E K K L W G L K V L Q E L S Q W T V R S I H D L R V I S S H H M G I S A H E S H Y G A K Q M </p>
Biological Activity	Measure by its ability to induce proliferation in TF-1 cells. The ED ₅₀ for this effect is <10 ng/mL. The specific activity of recombinant mouse CNTF is > 1 x 10 ⁵ IU/mg
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS, pH 7.4.
Endotoxin Level	<0.1 EU per 1 µg of the protein by the LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH ₂ O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

DESCRIPTION

Background	<p>Ciliary Neurotrophic Factor (CNTF) belongs to the IL-6 cytokine family. IL-6, IL-11 and CNTF are associated with cytokine trans signaling. CNTF shows a low affinity interaction with IL-6 receptor subunit alpha (IL-6Rα), leading to the formation and activation of the IL-6Rβ/gp130/LIFR signaling receptor complex^[1]. CNTF is also an extracellular signaling protein in the neuroretinal and the interphotoreceptor matrix, which is associated with the membranes of the RPE, Muller and photoreceptor cells^[2]. CNTF has neuroprotective effects on a variety of central and also peripheral nervous system neurons.</p>
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Because it promotes differentiation and maturation of oligodendrocyte precursor cells to oligodendrocytes under in vitro conditions and thus improves remyelination. Importantly, it also increases the survival of mature oligodendrocytes^[3]. The similarity of human CNTF protein sequences to mice and rats was 81.82% and 84.0%, respectively.

REFERENCES

- [1]. Jones SA, et al. Recent insights into targeting the IL-6 cytokine family in inflammatory diseases and cancer. *Nat Rev Immunol*. 2018 Dec;18(12):773-789.
- [2]. Li S, et al. Ciliary neurotrophic factor (CNTF) protects retinal cone and rod photoreceptors by suppressing excessive formation of the visual pigments. *J Biol Chem*. 2018 Sep 28;293(39):15256-15268.
- [3]. Abbaszadeh HA, et al. Human ciliary neurotrophic factor-overexpressing stable bone marrow stromal cells in the treatment of a rat model of traumatic spinal cord injury. *Cytotherapy*. 2015 Jul;17(7):912-21.
- [4]. Holm NR, et al. CNTF inhibits high voltage activated Ca²⁺ currents in fetal mouse cortical neurones. *J Neurochem*. 2002 Aug;82(3):495-503.
- [5]. Watt MJ, et al. CNTF reverses obesity-induced insulin resistance by activating skeletal muscle AMPK. *Nat Med*. 2006 May;12(5):541-8.
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Caution: Product has not been fully validated for medical applications. For research use only.

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