

## Animal-Free CNTF Protein, Human (His)

Cat. No.:	HY-P72943AF
Synonyms:	Ciliary neurotrophic factor; CNTF
Species:	Human
Source:	E. coli
Accession:	P26441 (M1-M200)
Gene ID:	1270
Molecular Weight:	Approximately 23.74 kDa

### PROPERTIES

AA Sequence	<p>           M A F T E H S P L T      P H R R D L C S R S      I W L A R K I R S D      L T A L T E S Y V K            H Q G L N K N I N L      D S A D G M P V A S      T D Q W S E L T E A      E R L Q E N L Q A Y            R T F H V L L A R L      L E D Q Q V H F T P      T E G D F H Q A I H      T L L L Q V A A F A            Y Q I E E L M I L L      E Y K I P R N E A D      G M P I N V 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 F I S      S H Q T G I P A R G      S H Y I A N N K K M         </p>
Biological Activity	Measure by its ability to induce proliferation in TF-1 cells. The ED <sub>50</sub> for this effect is <0.15 µg/mL.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 1X PBS, pH 7.4.
Endotoxin Level	<0.01 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 <sub>2</sub> 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-6R<math>\alpha</math>), leading to the formation and activation of the IL-6R<math>\beta</math>/gp130/LIFR signaling receptor complex<sup>[1]</sup>. 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<sup>[2]</sup>. CNTF has neuroprotective effects on a variety of central and also peripheral nervous system neurons. Because it promotes differentiation and maturation of oligodendrocyte precursor cells to oligodendrocytes under in vitro</p>
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conditions and thus improves remyelination. Importantly, it also increases the survival of mature oligodendrocytes<sup>[3]</sup>. The similarity of human CNTF protein sequences to mice and rats was 81.82% and 84.0%, respectively.

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## REFERENCES

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- [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]. Zurn A D, et al. Combined effects of GDNF, BDNF, and CNTF on motoneuron differentiation in vitro[J]. *Journal of neuroscience research*, 1996, 44(2): 133-141.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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