CNTF Protein, Human

Cat. No.:	HY-P7146
Synonyms:	rHuCNTF; Ciliary Neurotrophic Factor
Species:	Human
Source:	E. coli
Accession:	P26441 (A2-M200)
Gene ID:	1270
Molecular Weight:	Approximately 22-25 kDa

PROPERTIES

AA Sequence	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
Biological Activity	The ED_{50} is <200 ng/mL as measured by TF-1 cells, corresponding to a specific activity of >5 × 10^3 units/mg.
Appearance	Lyophilized powder
Formulation	Lyophilized after extensive dialysis against PBS or 20 mM Tris-HCl, 100 mM NaCl, pH 8.0 or 50 mM Tris-HCL, 300 mM NaCl, pH 8.0 or PBS, pH 7.4, 8% trehalose.
Endotoxin Level	<0.2 EU/μg, determined by LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O. For long term storage it is recommended to add a carrier protein (0.1% BSA, 5% HSA, 10% FBS or 5% Trehalose).
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	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. 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]. 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.

[4]. 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.

[5]. Pasquin S, et al. Ciliary neurotrophic factor (CNTF): New facets of an old molecule for treating neurodegenerative and metabolic syndrome pathologies. Cytokine Growth Factor Rev. 2015 Oct;26(5):507-15.

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