

CNTF Protein, Rat (His)

Cat. No.:	HY-P7148A
Synonyms:	rRtCNTF; Ciliary Neurotrophic Factor
Species:	Rat
Source:	E. coli
Accession:	P20294 (A2-M200)
Gene ID:	25707
Molecular Weight:	Approximately 25 kDa

PROPERTIES

AA Sequence	<p>A F A E Q T 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</p> <p>Q G L N K N I N 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</p> <p>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 M L Q V S A F A Y</p> <p>Q L E E L M V L L E Q K I P E N E A D G M P A T V G D G G L F E K K L W G L K V</p> <p>L Q E L S Q W T V R S I H D L R V I S S H Q M G I S A L E S H Y G A K D K Q M</p>
Biological Activity	Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. The ED ₅₀ for this effect is 9.786 ng/mL, corresponding to a specific activity is 1.022×10 ⁵ units/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.22 μm filtered solution of PBS, 300 mM NaCl, pH 7.4.
Endotoxin Level	<1 EU/μg, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH ₂ O. 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
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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]. 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]. Saadat S, et al. Ciliary neurotrophic factor induces cholinergic differentiation of rat sympathetic neurons in culture[J]. *The Journal of cell biology*, 1989, 108(5): 1807-1816.
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Tel: 609-228-6898

Fax: 609-228-5909

E-mail: tech@MedChemExpress.com

Address: 1 Deer Park Dr, Suite Q, Monmouth Junction, NJ 08852, USA