Cytokines

Human Recombinant CNTF, ACF

Ciliary neurotrophic factor, animal component-free

Catalog #	78170	20 µg
	78170.1	100 µg
	78170.2	1000 µg

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Product Description

Ciliary neurotrophic factor (CNTF) is a neurotrophic factor that belongs to the four-helix bundle cytokine family and is structurally related to interleukin 6 (IL-6), interleukin 11 (IL-11), leukemia inhibitory factor (LIF), and oncostatin M (OSM). CNTF binds to its receptor CNFTRα and induces formation of a heterodimer of the signal transducing IL-6 receptor gp130 and LIF receptor (LIFR)-β, which triggers JAK/STAT, ERK, and PI3K signaling cascades (Schuster et al.). CNTF plays an important role in neurogenesis and the differentiation of neural stem cells and has been suggested to possess a therapeutic role in treating neurological disorders (Ding et al.; Oppenheim et al.). CNTF has also been shown to protect rod photoreceptors from light-induced damage and have therapeutic effects on retinal degenerative diseases caused by genetic defect or damage induced by toxins, autoantibodies, or strong light (Pernet et al.; Rhee et al.). Another therapeutic role of CNTF has been reported in protecting oligodendrocytes from death induced by apoptosis (Louis et al.). Additionally, CNTF is commonly used to differentiate human pluripotent stem cell (hPSC)-derived neural progenitor cells into astrocytes (Krencik & Zhang). This product is animal component-free.

Product Information

Alternative Names:	Ciliary neurotrophic factor, HCNTF
Accession Number:	P26441
Amino Acid Sequence:	MAFTEHSPLT PHRRDLCSRS IWLARKIRSD LTALTESYVK HQGLNKNINL DSADGMPVAS TDQWSELTEA ERLQENLQAY RTFHVLLARL LEDQQVHFTP TEGDFHQAIH TLLLQVAAFA YQIEELMILL EYKIPRNEAD GMPINVGDGG LFEKKLWGLK VLQELSQWTV RSIHDLRFIS SHQTGIPARG SHYIANNKKM
Predicted Molecular Mass:	22.9 kDa
Species:	Human
Cross Reactivity:	Reported to be species-specific
Formulation:	Lyophilized from a sterile-filtered solution containing sodium phosphate, pH 7.5.
Source:	E. coli

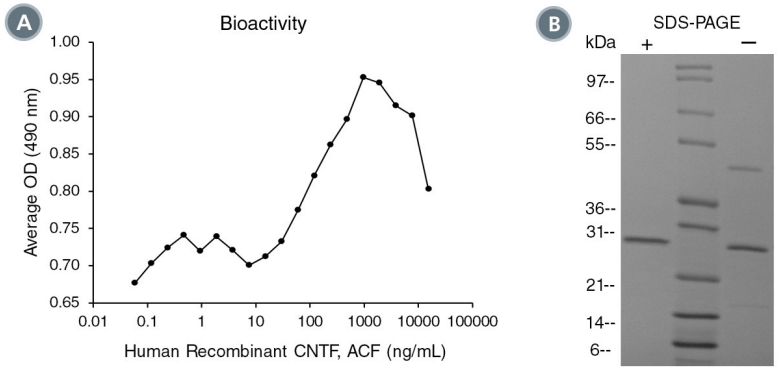
Specifications

Activity:	The specific activity is ≥ 3.1 x 10^3 units/mg (EC50 ≤ 325 ng/mL) as determined by a cell proliferation assay using TF-1 cells.
Purity:	≥ 95%
Endotoxin Level:	Measured by kinetic Limulus amebocyte lysate (LAL) analysis and is ≤ 1 EU/µg protein.

Preparation and Storage

Storage:	Store at -20°C to -80°C.
Stability:	Stable as supplied for 12 months from date of receipt.
Preparation:	Centrifuge vial before opening. Bring vial and sterile water to room temperature (15 - 25°C). Reconstitute the product in sterile water to at least 0.1 mg/mL by pipetting the solution down the sides of the vial. Do not vortex. Let solution sit for 1 minute at room temperature (15 - 25°C). If precipitate is observed, centrifuge at 16,000 x g for 1 minute. Remove supernatant and transfer to a new tube, taking care not to disturb the pellet. Discard the pellet. A 10% overfill has been added to compensate for any loss of protein in the precipitate. OPTIONAL: After reconstitution, if product will not be used immediately, dilute with concentrated bovine serum albumin (BSA) to a final BSA concentration of 0.1%. The effect of storage of stock solution on product performance should be tested for each application. As a general guide, do not store at 2 - 8°C for more than 1 month or at -80°C for more than 3 months. Avoid repeated freeze-thaw cycles.

Data



(A) The biological activity of Human Recombinant CNTF, ACF was tested by its ability to promote proliferation of TF-1 cells. Cell proliferation was measured using a fluorometric assay method. The EC50 is defined as the effective concentration of the hormone at which cell proliferation is at 50% of maximum. The EC50 in the example above is 96.7 ng/mL.
(B) 1 µg of Human Recombinant CNTF, ACF was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant CNTF, ACF has a predicted molecular mass of 22.9 kDa.

Related Products

For a complete list of cytokines, as well as related products available from STEMCELL Technologies, visit www.stemcell.com/cytokines or contact us at techsupport@stemcell.com.

References

Ding J et al. (2013) Role of ciliary neurotrophic factor in the proliferation and differentiation of neural stem cells. J Alzheimers Dis 37(3): 587–92.
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