SANTA CRUZ BIOTECHNOLOGY, INC.

CNTF (F-12): sc-365210

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

BACKGROUND

Ciliary neurotrophic factor, or CNTF, is a neuropoietic cytokine that promotes the survival and differentiation of a number of cell types including sensory, sympathetic and motor neurons. CNTF, LIF and IL-6 belong to a family of cytokines that share structural homology and signal through identical receptor components. The CNTF receptor (CNTFR) is comprised of CNTFRα, a CNTFR-specific chain, and a heterodimer of the gp130 chain common to the IL-6 and LIF receptor and the LIFRβ chain. The CNTFR complex has been shown to augment DNA synthesis through the activation of transcription factors Stat1 and Stat3. CNTF has been implicated as a protein involved in the pathogenesis of amyotrophic lateral sclerosis, or ALS. However, unlike mice lacking CNTF, mice containing a homozygous null mutation in the gene encoding the CNTFRα chain die perinatally and display severe motor neuron deficits. This data suggests the existence of a second CNTFR ligand that plays a critical role in development of the neonatal nervous system.

REFERENCES

1. He, C., et al. 1995. Preparation and a structure-function analysis of human ciliary neurotrophic factor. Neurosci. Res. 23: 327-333.
2. Saggio, I., et al. 1995. CNTF variants with increased biological potency and receptor selectivity define a functional site of receptor interaction. EMBO J. 14: 3045-3054.

CHROMOSOMAL LOCATION

Genetic locus: CNTF (human) mapping to 11q12.1; Cntf (mouse) mapping to 19 A.

SOURCE

CNTF (F-12) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 171-197 at the C-terminus of CNTF of rat origin.

PRODUCT

Each vial contains 200 µg IgG_1 kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-365210 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

CNTF (F-12) is recommended for detection of CNTF of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

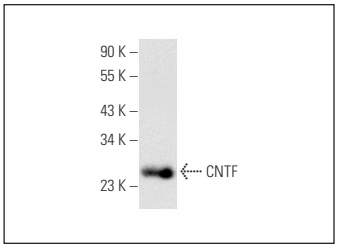
Suitable for use as control antibody for CNTF siRNA (h): sc-41921, CNTF siRNA (m): sc-41922, CNTF shRNA Plasmid (h): sc-41921-SH, CNTF shRNA Plasmid (m): sc-41922-SH, CNTF shRNA (h) Lentiviral Particles: sc-41921-V and CNTF shRNA (m) Lentiviral Particles: sc-41922-V.

Molecular Weight of CNTF: 22 kDa.

RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



CNTF (F-12): sc-365210. Western blot analysis of full length rat recombinant CNTF.

SELECT PRODUCT CITATIONS

1. Srivastava, V., et al. 2011. Suppressors of cytokine signaling inhibit effector T cell responses during *Mycobacterium tuberculosis* infection. Immunol. Cell Biol. 89: 786-791.
2. Modi, K.K., et al. 2013. Up-regulation of ciliary neurotrophic factor in astrocytes by aspirin: implications for remyelination in multiple sclerosis. J. Biol. Chem. 288: 18533-18545.
3. Modi, K.K., et al. 2015. Sodium benzoate, a metabolite of cinnamon and a food additive, upregulates ciliary neurotrophic factor in astrocytes and oligodendrocytes. Neurochem. Res. 40: 2333-2347.
4. Cui, W., et al. 2019. An oleanolic acid derivative reduces denervation-induced muscle atrophy via activation of CNTF-mediated JAK2/STAT3 signaling pathway. Eur. J. Pharmacol. 861: 172612.
5. Liu, X., et al. 2021. Neuroprotective effects of bone marrow Sca-1$^+$ cells against age-related retinal degeneration in OPTN E50K mice. Cell Death Dis. 12: 613.
6. Lee, K., et al. 2022. Ciliary neurotrophic factor derived from astrocytes protects retinal ganglion cells through PI3K/Akt, JAK/STAT, and MAPK/ERK pathways. Invest. Ophthalmol. Vis. Sci. 63: 4.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.