Cytokines

Human Recombinant NT-3

Neurotrophin-3

Catalog #	78074	10 µg
	78074.1	100 µg
	78074.2	1000 µg

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Product Description

Neurotrophin-3 (NT-3) is a neurotrophic factor and a member of the nerve growth factor (NGF) family of proteins that includes neuron growth factor (NGF), brain-derived neurotrophic factor (BDNF), and neurotrophin-4/5. NT-3 signals a number of trophic effects through its transducing receptor tyrosine kinase TrkC. NT-3 is known to promote survival, development, and differentiation of neurons, and modulates transmitter release at several types of synapses in the peripheral and central nervous systems (Chalazonitis 1996). NT-3 has been shown to have an important role in the overall development of enteric neurons, which are crucial for gut peristalsis (Chalazonitis 2004). Studies in rats have shown the potential of NT-3 in dorsal column axonal regeneration (Bradbury et al.). NT-3 was shown to protect neurons against amyloid-β toxicity (Lesne et al.). NT-3 has applications in neuronal differentiation protocols to generate β-tubulin III+ peripheral neurons from neural crest stem cells (Menendez et al.) and oligodendrocyte precursor cells from human embryonic stem (ES) and induced pluripotent stem (iPS) cells (Douvaras et al.).

Product Information

Alternative Names:	HGNF, NGF-2, Nerve growth factor 2, Neurotrophin 3, NT3
Accession Number:	P20783
Amino Acid Sequence:	MYAEHKSHRG EYSVCDSESL WVTDKSSAID IRGHQVTVLG EIKTGNSPVK QYFYETRCKE ARPVKNGCRG IDDKHWNSQC KTSQTYVRAL TSENNKLVGWRW IRIDTSCV CALSRKIGRT
Predicted Molecular Mass:	27.5 kDa
Species:	Human
Cross Reactivity:	Mouse, Rat, Monkey
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

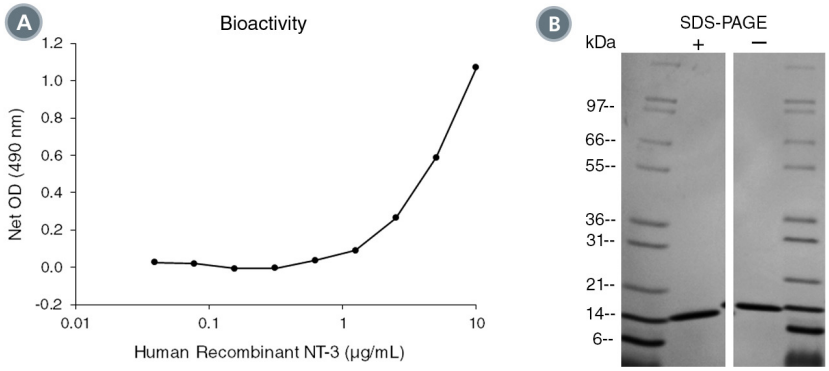
Specifications

Activity:	The specific activity is ≥ 50 units/mg (EC50 ≤ 20 µg/mL) as determined by a cell proliferation assay using C6 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. 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. 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 NT-3 was tested by its ability to promote the proliferation of C6 cells. Cell proliferation was measured after 7 days of culture using a fluorometric assay method. The EC50 is defined as the effective concentration of the growth factor at which cell proliferation is at 50% of maximum. The EC50 in the above example is 3.6 - 5.4 µg/mL.
(B) 1 µg of Human Recombinant NT-3 was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant NT-3 is predicted to be a non-covalently linked homodimer, with each dimer having a molecular mass of 13.8 kDa for a predicted total molecular weight of 27.5 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

Bradbury EJ et al. (1999) NT-3 promotes growth of lesioned adult rat sensory axons ascending in the dorsal columns of the spinal cord. Eur J Neurosci 11(11): 3873–83.
Chalazonitis A. (1996) Neurotrophin-3 as an essential signal for the developing nervous system. Mol Neurobiol 12(1): 39–53.
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Douvaras P et al. (2014) Efficient generation of myelinating oligodendrocytes from primary progressive multiple sclerosis patients by induced pluripotent stem cells. Stem cell reports 3(2): 250–9.
Lesne S et al. (2005) Akt-dependent expression of NAIP-1 protects neurons against amyloid-beta toxicity. J Biol Chem 280(26): 24941–7.
Menendez L et al. (2013) Directed differentiation of human pluripotent cells to neural crest stem cells. Nat Protoc 8(1): 203–12.