

PRODUCT INFORMATION



NT-3 (human, recombinant)

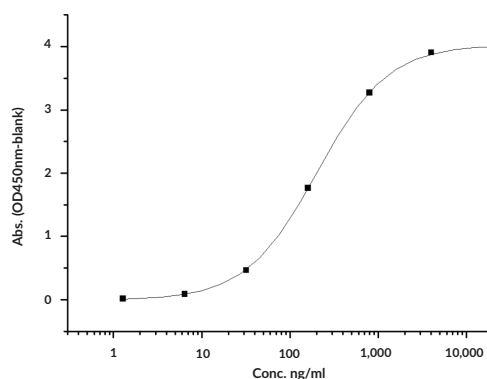
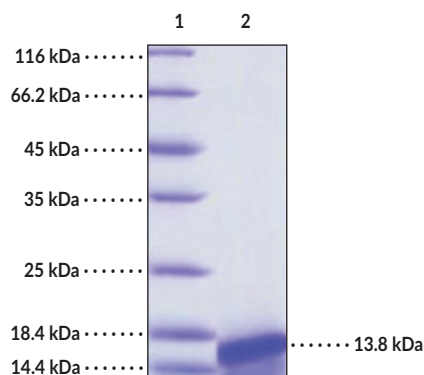
Item No. 42755

Overview and Properties

Synonyms:	HDNF, Hippocampus-derived Neurotrophic Factor, Nerve Growth Factor 2, Neurotrophin-3, NGF-2, NTF3
Source:	Active recombinant human NT-3 expressed in <i>E. coli</i>
Amino Acids:	Met1; 139-257
Uniprot No.:	P20783
Molecular Weight:	13.8 kDa
Storage:	-80°C (as supplied)
Stability:	≥1 year
Purity:	≥90% estimated by SDS-PAGE
Supplied in:	Lyophilized from sterile PBS, pH 5.2, 5% trehalose, 5% mannitol, and 0.01% Tween 80
Bioactivity:	See figures for details
Specific Activity:	batch specific

Information represents the product specifications. Batch specific analytical results are provided on each certificate of analysis.

Images



Binding ability in a functional ELISA. Immobilized human NT-3 at 2 µg/ml (100 µl/well) can bind human TrkB-Fch. The EC₅₀ of human TrkB-Fch is 120-350 ng/ml.

WARNING

THIS PRODUCT IS FOR RESEARCH ONLY - NOT FOR HUMAN OR VETERINARY DIAGNOSTIC OR THERAPEUTIC USE.

SAFETY DATA

This material should be considered hazardous until further information becomes available. Do not ingest, inhale, get in eyes, on skin, or on clothing. Wash thoroughly after handling. Before use, the user must review the [complete](#) Safety Data Sheet, which has been sent via email to your institution.

WARRANTY AND LIMITATION OF REMEDY

Buyer agrees to purchase the material subject to Cayman's Terms and Conditions. Complete Terms and Conditions including Warranty and Limitation of Liability information can be found on our website.

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CAYMAN CHEMICAL

1180 EAST ELLSWORTH RD

ANN ARBOR, MI 48108 · USA

PHONE: [800] 364-9897

[734] 971-3335

FAX: [734] 971-3640

CUSTSERV@CAYMANCHEM.COM

WWW.CAYMANCHEM.COM

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Description

Neurotrophin-3 (NT-3) is a neurotrophin that is involved in neurogenesis and neuronal plasticity, proliferation, differentiation, and survival.¹⁻³ It is produced as a precursor protein composed of a signal peptide, a prodomain, and the mature NT-3 sequence, which is secreted from neurons after cleavage of the proprotein.² NT-3 is expressed in the cerebellum and peripheral tissues such as the heart, spleen, and kidneys.^{4,5} It homodimerizes and induces neurotropic signaling mainly through tropomyosin-related kinase C (TrkC) and the p75 neurotrophin receptor (p75^{NTR}), but it does signal through TrkA and TrkB to a lesser extent.^{1,2} NT-3 induces neurite outgrowth in chick embryonic peripheral sensory and sympathetic neurons *in vitro*.⁵ Conditional knockout of *Ntf3*, the gene encoding NT-3, in the brain induces learning deficits in a spatial memory task in mice.³ Hippocampal and prefrontal cortex levels of NT-3 are decreased in suicide victims.⁶ Cayman's NT-3 (human, recombinant) protein can be used for binding assays. The protein was synthesized from a DNA sequence encoding the mature form of human NT-3 (Tyr139-Thr257) with an N-terminal translation-initiating methionine (Met1). The expressed protein consists of 120 amino acids, has a calculated molecular weight of 13.8 kDa, and a predicted N-terminus of Met1.

References

1. Davies, A.M. Neurotrophins: The yin and yang of nerve growth factor. *Curr. Biol.* **7**(1), R38-R40 (1997).
2. Bothwell, M. NGF, BDNF, NT3, and NT4. *Neurotrophic Factors. Handbook of Experimental Pharmacology*, Springer (2014).
3. Shimazu, K., Zhao, M., Sakata, K., *et al.* NT-3 facilitates hippocampal plasticity and learning and memory by regulating neurogenesis. *Learn. Mem.* **13**(3), 307-315 (2006).
4. Jones, K.R. and Reichardt, L.F. Molecular cloning of a human gene that is a member of the nerve growth factor family. *Proc. Natl. Acad. Sci. USA* **87**(20), 8060-8064 (1990).
5. Rosenthal, A., Goeddel, D.V., Nguyen, T., *et al.* Primary structure and biological activity of a novel human neurotrophic factor. *Neuron* **4**(5), 767-773 (1990).
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CAYMAN CHEMICAL
1180 EAST ELLSWORTH RD
ANN ARBOR, MI 48108 · USA
PHONE: [800] 364-9897
[734] 971-3335
FAX: [734] 971-3640
CUSTSERV@CAYMANCHEM.COM
WWW.CAYMANCHEM.COM