Cytokines

Human Recombinant NGF-beta

Nerve growth factor beta

Catalog #	78092	20 µg
	78092.1	100 µg

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Product Description

Nerve growth factor (NGF)-beta is a prototypical member of the neurotrophin family and has a role in the survival and growth of neural cells, regulating cell growth, promoting differentiation into neurons, and neuron migration. The beta subtype of NGF is biologically active in comparison to the alpha-2 and gamma-2 subtypes. NGF-beta in its secreted form can bind to tyrosine kinase A (TrkA) receptor with high affinity and to p75 (NTR) with low affinity (Levi & Alemà; Sofroniew et al.). NGF has been shown to possess pro-inflammatory and pro-fibrogenic properties (Micera et al.). It has also been shown that overexpression of NGF-beta promotes differentiation of bone marrow mesenchymal stem cells into neurons through regulation of AKT and MAPK pathways (Yuan et al.).

Product Information

Alternative Names:	Beta-nerve growth factor, beta-NGF, nerve growth factor (beta polypeptide)
Accession Number:	P01138
Amino Acid Sequence:	MSSSHPIFHR GEFSVCDSVS VWVGDKTTAT DIKGKEVMVL GEVNINNSVF KQYFFETKCR DPNPVDSGCR GIDSKHWNSY CTTTHTFVKA LTMDGKQAAW RFIRIDTACV CVLSRKAVRR A
Predicted Molecular Mass:	13.6 kDa monomer; 27.3 kDa dimer
Species:	Human
Cross Reactivity:	Mouse, Rat
Formulation:	Lyophilized from a sterile-filtered aqueous solution containing 0.1% trifluoroacetic acid.
Source:	E. coli

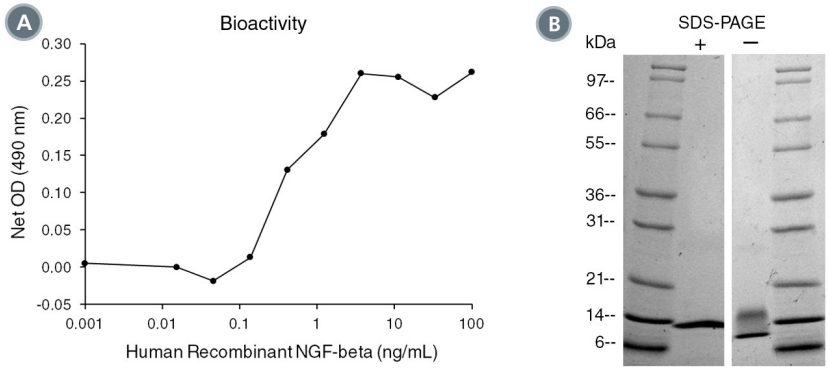
Specifications

Activity:	The EC50 is ≤ 5 ng/mL as determined by a cell proliferation assay using TF-1 cells. The specific activity is approximately 3.26 x 10^2 IU/µg as calibrated against the human recombinant NGF-beta WHO International Standard (NIBSC code: 93/5560).
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 NGF-beta was tested by its ability to promote the proliferation of TF-1 cells grown in GM-CSF-free medium. Cell proliferation was measured after 67 hours 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 0.54 ng/mL.
(B) 1 µg of Human Recombinant NGF-beta was resolved with SDS-PAGE under reducing (+) and non-reducing (-) conditions and visualized by Coomassie Blue staining. Human Recombinant NGF-beta is a homodimer of 13.6 kDa subunits with a predicted total molecular mass of 27.3 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

Levi A & Alemà S. (1991) The mechanism of action of nerve growth factor. Annu Rev Pharmacol Toxicol 31: 205–28.
Micera A et al. (2003) New insights on the involvement of nerve growth factor in allergic inflammation and fibrosis. Cytokine Growth Factor Rev 14(5): 369–74.
Sofroniew M V et al. (2001) Nerve growth factor signaling, neuroprotection, and neural repair. Annu Rev Neurosci 24: 1217–81.
Yuan J et al. (2013) Overexpression of β-NGF promotes differentiation of bone marrow mesenchymal stem cells into neurons through regulation of AKT and MAPK pathway. Mol Cell Biochem 383(1-2): 201–11.