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<b>Products</b>	Human NGF- $\beta$ , research grade. Recombinant human nerve growth factor $\beta$ .								
	<table> <tr> <th>Content in <math>\mu</math>g</th><th>Order no.</th></tr> <tr> <td>20</td><td>130-127-430</td></tr> <tr> <td>100</td><td>130-127-431</td></tr> <tr> <td>1000</td><td>130-127-432</td></tr> </table>	Content in $\mu$ g	Order no.	20	130-127-430	100	130-127-431	1000	130-127-432
Content in $\mu$ g	Order no.								
20	130-127-430								
100	130-127-431								
1000	130-127-432								
<b>Biological activity</b>	The ED <sub>50</sub> is $\leq 1$ ng/mL corresponding to an activity of $\geq 1 \times 10^6$ U/mg. <b>Note:</b> The ED <sub>50</sub> is determined by proliferation assay using human TF-1 cells.								
<b>Primary structure</b>	Two identical non-glycosylated, non-covalently linked polypeptide chains without N-terminal methionines (120 amino acid residues each).								
<b>Molecular mass</b>	27 kDa (Dimer).								
<b>Source</b>	Produced in <i>E. coli</i> .								
<b>Product format</b>	Lyophilized from a filtered (0.2 $\mu$ m) buffer solution.								
<b>Stabilizer</b>	None.								
<b>Purity</b>	>97% as determined by SDS-PAGE analysis.								
<b>Endotoxin level</b>	Low endotoxin (<1 EU/ $\mu$ g cytokine) as determined by Limulus Amebocyte Lysate (LAL) assay.								
<b>Storage</b>	Lyophilized Human NGF- $\beta$ , research grade should be stored at $-20$ °C. The expiration date is indicated on the vial label. Upon reconstitution aliquots should be stored at $-20$ °C or below. Avoid repeated freeze-thaw cycles.								
<b>Reconstitution</b>	It is recommended to reconstitute lyophilized Human NGF- $\beta$ , research grade with deionized sterile-filtered water to a final concentration of 0.1–1.0 mg/mL in a minimal volume of 100 $\mu$ L. Further dilutions should be prepared with 0.1% bovine serum albumin (BSA) or human serum albumin (HSA) in phosphate-buffered saline.								

#### 1.1 Background information

Nerve growth factor  $\beta$  (NGF- $\beta$ ) is the first identified member of the NGF family, also known as neurotrophins, which is characterized by a homodimeric cystine knot structure, and includes also brain-

derived neurotrophic factor (BDNF), neurotrophin 3 (NT-3), and neurotrophin 4 (NT-4). The precursor of NGF- $\beta$ , pro-NGF- $\beta$ , is biologically inactive and is cleaved to generate the mature form. NGF- $\beta$  acts as a potent neurotrophic factor via binding of two classes of receptors, which activate a complex intracellular cascade. NGF- $\beta$  plays a central role in the sensory and sympathetic nervous system, supports the growth and maintenance of nerve and glial cells, and induces axonal growth. Besides its role in the nervous system, NGF- $\beta$  can also induce differentiation and survival of B cells. NGF- $\beta$  and its receptors have been associated with several psychiatric and neurodegenerative disorders, such as Alzheimer disease and multiple sclerosis. The protein sequences of human and mouse NGF- $\beta$  share 90% identity and exhibit cross species activity.

#### 1.2 Applications

Human NGF- $\beta$  can be used for a variety of applications, including:

- Neuronal proliferation and differentiation.
- Induction of axonal growth.
- Proliferation of Leydig cells.

The optimal concentration for a specific application should be determined by a dose-response experiment.

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