

## Animal-Free Beta-NGF Protein, Human (His)

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| Cat. No.:         | HY-P700018AF                 |
| Synonyms:         | β-Nerve Growth Factor; NGF-β |
| Species:          | Human                        |
| Source:           | E. coli                      |
| Accession:        | P01138 (S122-A241)           |
| Gene ID:          | 4803                         |
| Molecular Weight: | Approximately 14.43 kDa      |

### PROPERTIES

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| AA Sequence         | <p>M S S S H P I F H R    G E F S V C D S V S    V W V G D K T T A T    D I K G K E V M V L</p> <p>G E V N I N N S V F    K Q Y F F E T K C R    D P N P V D S G C R    G I D S K H W N S Y</p> <p>C T T T H T F V K A    L T M D G K Q A A W    R F I R I D T A C V    C V L S R K A V R R</p> <p>A</p> |
| Biological Activity | Measure by its ability to induce TF-1 cells proliferation. The ED <sub>50</sub> for this effect is <0.7 ng/mL. The specific activity of recombinant human beta-NGF is > 1 x 10 <sup>6</sup> IU/mg  |
| Appearance          | Lyophilized powder.  |
| Formulation         | Lyophilized from a solution containing 20 mM sodium citrate, 0.2 M NaCl, pH 3.5.   |
| Endotoxin Level     | <0.1 EU per 1 µg of the protein by the LAL method.   |
| Reconstitution      | It is not recommended to reconstitute to a concentration less than 100 µg/mL in ddH <sub>2</sub> O.  |
| Storage & Stability | Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.   |
| Shipping            | Room temperature in continental US; may vary elsewhere.  |

### DESCRIPTION

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| Background | <p>Nerve Growth Factor-β (Beta-NGF; NGF) is a basic protein of 118 amino acids which acts as a trophic factor for sensory and sympathetic neurons of the peripheral nervous system, and on cholinergic neurons of the anterior basal cerebrum<sup>[1]</sup>. NGF involves in the regulation of neuronal survival and differentiation. Elevated levels of NGF are associated with the risk of post-traumatic stress disorder (PTSD). The trauma response leads to methylation of DNA nucleotides responsible for NGF expression. NGF levels have shown increased sympathetic fiber density proportional to NGF messenger RNA (mRNA) levels. NGF is also a seminal plasma protein commonly found in mammals. For example, NGF acts as an ovulation stimulating</p> |
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factor in camels and has been shown to have luteinizing effects in bulls. NGF has a potential function in the female reproductive system. For example, NGF plays an important role in ovulation induction, LH release, ovulation, luteal development, progesterone (P4) production, vascularization of luteal body, and gonadotropin response. Application of NGF to cattle enhances steroid production, luteal formation and function by increasing LH release, and leads to increased mRNA expression of markers of pregnancy and development downstream. In addition, the potential luteinizing effect of NGF could help overcome the current problem of early embryo loss<sup>[2][3]</sup>. The similarity between human and bovine NGF protein sequence was 90.87%. Meanwhile, the similarity rate of human NGF with rat and mouse was 85.89% and 85.06%, respectively.

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## REFERENCES

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- [1]. Castellanos MR, et al. Obtención y caracterización del beta-NGF murino. Aplicación en un modelo de envejecimiento cerebral [Obtention and characterization of murine beta-NGF. Application in a model of cerebral aging]. *Rev Neurol.* 1998;26(153):717-722.
- [2]. Lipov EG, et al. Possible Reversal of PTSD-Related DNA Methylation by Sympathetic Blockade. *J Mol Neurosci.* 2017 May;62(1):67-72.
- [3]. Lima FS, et al. Insights into nerve growth factor- $\beta$  role in bovine reproduction - Review. *Theriogenology.* 2020 Jul 1;150:288-293.
- [4]. Otten U, et al. Nerve growth factor induces growth and differentiation of human B lymphocytes. *Proc Natl Acad Sci U S A.* 1989 Dec;86(24):10059-63.
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**Caution: Product has not been fully validated for medical applications. For research use only.**

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