Animal-Free Beta-NGF Protein, Mouse (His)

Cat. No.:	HY-P700162AF
Synonyms:	beta-NGF; beta-Nerve Growth Factor; NGF; NGFB
Species:	Mouse
Source:	E. coli
Accession:	P01139 (S122-G241)
Gene ID:	18049
Molecular Weight:	Approximately 14.41 kDa

PROPERTIES

AA Sequence	M S S T H P V F H M 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 T V L A E V N I N N S V F R Q Y F F E T K C R A S N P V E S G C R G I D S K H W N S Y C T T T H T F V K A L T T D E K Q A A W R F I R I D T A C V C V L S R K A T R R G
Biological Activity	Measure by its ability to induce TF-1 cells proliferation. The ED_{50} for this effect is <1 ng/mL. The specific activity of recombinant mouse beta-NGF is >1 x 10^6 IU/mg.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a solution containing 20 mM sodium citrate, 0.2 M NaCl, pH 4.5.
Endotoxin Level	<0.1 EU per 1 μg of the protein by the LAL method.
Reconsititution	It is not recommended to reconstitute to a concentration less than 100 μg/mL in ddH_2O.
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

Background	Nerve Growth Factor-β (Beta-NGF; NGF) is a basic protein of 118 amino acids which acts are a trophic factor for sensory and sympathetic neurons of the peripheral nervous system, and on cholinergic neurons of the anterior basal cerebrum[1]. 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

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[2][3]. 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.

REFERENCES

[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-β role in bovine reproduction - Review. Theriogenology. 2020 Jul 1;150:288-293.

[4]. Yada M, et al. NGF stimulates differentiation of osteoblastic MC3T3-E1 cells. Biochem Biophys Res Commun. 1994 Dec 15;205(2):1187-93.

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