Genorise® Recombinant Mouse NGF-B

Catalog Number: GR186034

Nerve growth factor (NGF) is a neurotrophic factor and neuropeptide primarily involved in the regulation of growth, maintenance, proliferation, and survival of certain target neurons. NGF also plays crucial roles in the survival of pancreatic beta cells and the regulation of the immune system. NGF is produced as proNGF in a 7S, 130-kDa complex of 3 proteins - Alpha-NGF, Beta-NGF (NGF-B), and Gamma-NGF (2:1:2 ratio) when expressed. The gamma subunit of this complex acts as a serine protease and cleaves the N-terminal of the beta subunit into functional NGF (NGF-B). The term NGF usually refers to the 2.5S, 26-kDa beta subunit of the protein, the only component of the 7S NGF complex that is biologically active. NGF binds with at least two classes of receptors: TrkA and LNGFR/p75NTR. [1][2] NGF can promote bcl-2 gene expression by binding to the TrkA, which stimulates the proliferation and survival of the target neuron. High affinity binding between proNGF, sortilin, and p75NTR can result in either survival or programmed cell death (PCD). Studies show that superior cervical ganglia neurons that express both p75NTR and TrkA die when treated with proNGF,[1]while NGF treatment of these same neurons results in survival and axonal growth. Survival and PCD mechanisms are mediated through adaptor protein binding to the death domain of the p75NTR cytoplasmic tail. NGF expression may be stimulated by DHEA[3] and ACTH. The expression of NGF is increased in inflammatory diseases where it suppresses inflammation.[4] NGF appears to promote myelin repair. NGF is involved in various psychiatric disorders. Dysregulation of NGF signaling has also been linked to Alzheimer's disease.[5] NGF has been shown to play a role in cardiovascular diseases.[6] Reduced plasma levels of NGF and BDNF have been associated with acute coronary syndromes and metabolic syndromes.[7]

References

1. Lee R, et al. (Nov 2001). Science. 294 (5548): 1945–8.
2. Nykjaer A, et al. (2004). Nature. 427 (6977): 843–8.
3. Rahmani A, et al. (2011). Advances in Pharmacological Sciences. 2013: 506191.
4. Freund V, Frossard N (2004). Progress in Brain Research. 146: 335–46.
5. Counts SE, et al. (2005). J Neuropathology and Experimental Neurology. 64 (4): 263–72.
6. Chaldakov GN, et al. (2004). Progress in Brain Research. 146: 279–89.
7. Manni L, et al. 2005). International Journal of Cardiology. 102 (1): 169–71.

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Description

Source: *E. coli* derived
Amino acid sequence: Ser122-Gly241
Accession # P01139
N-terminal Sequence Analysis: Ser122
Structure/Form: Monomer
Predicted Molecular Mass: 14 kDa

Specifications

SDS-PAGE: 14 kDa, reducing conditions
Activity Measured in a cell proliferation assay using TF-1 human erythroleukemic cells. Kitamura T et al. (1989) J Cell Physiol 140:323. The ED_{50} for this effect is 0.28-1.76 ng/mL.
Endotoxin Level: < 0.1 EU per 1 μg of the protein by the LAL method.
Purity: > 97%, by SDSPAGE under reducing conditions and visualized by silver stain.
Formulation: Lyophilized from a 0.2 μm filtered PBS with BSA as a carrier protein.

Preparation and Storage

Reconstitution: Reconstitute at 50-100 μg/mL in sterile PBS containing 0.1% human or Mouse serum albumin.
Shipping: The product is shipped at ambient temperature or in a foam box with ice pads. Upon receipt, store it immediately at the temperature recommended below.
Stability & Storage: Use a manual defrost freezer and avoid repeated freeze thaw cycles.

- 6 months from date of receipt, -20 to -70°C as supplied.
- 1 month, -20 to -70°C under sterile conditions after reconstitution.

DECLARATION

THIS REAGENT IS FOR IN VITRO LABORATORY TESTING AND RESEARCH USE ONLY. DO NOT USE IT FOR CLINICAL DIAGNOSTICS. DO NOT USE OR INJECT IT IN HUMANS AND ANIMALS.

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