

Product Information

Nerve Growth Factor-2.5S from murine submaxillary glands

Catalog Number **N6009**
Storage Temperature $-20\text{ }^{\circ}\text{C}$

CAS RN 93928-24-6
Synonym: NGF-2.5S

Product Description

Nerve Growth Factor (NGF) was first discovered in 1953 by Levi-Montalcini, Hamburger, and Cohen¹⁻³ in two mouse sarcomas. It was described as a diffusible agent, which strongly promotes fiber outgrowth of sensory neurons in chick embryos. Cohen purified NGF from snake venom⁴ and from mouse salivary glands.⁵

NGF is a neurotrophic agent thought to be provided by peripheral tissues for the guidance and sustenance of outgrowing embryonic sympathetic and sensory neurons.⁶ NGF induces the formation of neurite-like filaments from chick embryo dorsal root ganglia² and from rat PC12 pheochromocytoma cells.⁷ *In vivo* NGF may be involved in fetal development^{8,9} and nerve regeneration.¹⁰ NGF may also play a physiological role within the central nervous system.^{8,11,12}

Cellular receptors for NGF have been found in a variety of cell lines¹³ and tissues, including cholinergic neurons of the brain^{14,15} and Schwann cells of damaged nerve axons.¹⁰ Two kinetic types of NGF receptors have been identified from peripheral neurons,¹⁶ neuroblastoma cells,¹⁷ and PC12 cells.¹⁸ They are designated as type I (high affinity) and type II (low affinity). The signal transduction mechanism of the receptor has not been clearly identified.

Nerve Growth Factor isolated from mouse submaxillary glands under non-dissociative conditions (NGF-7S, Catalog Number N0513) has a sedimentation coefficient of 7.1 S.^{19,20} It is generally believed that NGF-7S is a 130 kDa protein composed of five non-covalently linked subunits (2α , 1β , 2γ), although there is recent evidence for a different endogenous form of high molecular mass NGF.²¹ After dissociation of purified NGF-7S by acidic or basic pH, only the β subunit of NGF (NGF- β) has neurotrophic activity.⁶ NGF- β is a 26.5 kDa dimer of identical 118-residue chains held together tightly by noncovalent bonds.

NGF-2.5S is a form of NGF- β initially isolated under dissociative conditions and is often slightly different from NGF- β due to proteolysis incurred during its purification.⁶ Apparently the 7S complex protects the amino- and carboxy-terminals of NGF- β from hydrolytic enzymes present in the submaxillary gland extract.²² Both NGF-2.5S and NGF- β have comparable bioactive potencies.²³

This product is lyophilized from 0.2 μm filtered 5 mM sodium acetate, pH 5.0, with no carrier protein.

EC₅₀: 0.1–30 ng/ml

The biological activity of Nerve Growth Factor-2.5S is measured in a cell proliferation assay using PC-12 cells.²⁴ The EC₅₀ is defined as the effective concentration of growth factor that elicits a 50% increase in cell growth in a cell based bioassay.

Purity: >95% (SDS-PAGE)

Endotoxin: ≤ 10 EU/vial (LAL method)

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Material Safety Data Sheet for information regarding hazards and safe handling practices.

Preparation Instructions

To prepare a stock solution, reconstitute the contents of the vial in a solution that contains 0.1–1.0% BSA or 1–10% serum in buffered saline or tissue culture medium. This may be diluted immediately before use to the final working concentration of NGF-2.5S, generally 0.1–10 ng/ml. Additional filtration of the stock solution is not recommended and may result in product loss due to adsorption onto the filter membrane.

Storage/Stability

Store the product at $-20\text{ }^{\circ}\text{C}$. After reconstitution, the product may be stored for two weeks at $2-8\text{ }^{\circ}\text{C}$ or may be stored as aliquots at $-20\text{ }^{\circ}\text{C}$. Prolonged storage of product, or repeated freezing and thawing is not recommended.

References

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