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ProductInformation

NERVE GROWTH FACTOR RECEPTOR (NGF R, p75 NEUROTROPHIN R)/Fc CHIMERA
Human, Recombinant
Expressed in *Sf* 21 cells

Product Number **N 8898**

Product Description

Nerve Growth Factor Receptor (NGF R, p75 Neurotrophin R)/Fc is a chimeric protein expressed in *Sf* 21 insect cells. A DNA sequence encoding the extracellular domain of human NGF receptor[1] is fused to the carboxy-terminal 6X histidine-tagged Fc portion of human IgG1 via a peptide linker. Mature recombinant nerve growth factor receptor /Fc is a disulfide-linked homodimeric protein. Each monomer contains 466 amino acid residues and has a calculated molecular mass of 51 kDa. Due to glycosylation, recombinant human NGF receptor/Fc migrates as a 90 to 100 kDa protein in SDS-PAGE.

Nerve Growth Factor Receptor (NGF R), also named low-affinity NGF receptor (LNGFR), binds NGF and other neurotrophins including BDNF, NT-3, and NT-4 with similar affinity.[2,3] NGF receptor, a potent NGF antagonist, is a 75 kDa type I transmembrane glycoprotein consisting of an extracellular domain which contains four cysteine-rich domains responsible for ligand binding, a transmembrane domain, and a cytoplasmic domain consisting of a subtype 2 death region.[1,4]

Nerve growth factor receptor is expressed widely during development and in the adult. Expression occurs mainly in Schwann cells and neurons and in a variety of non-neuronal cells.[5] NGF receptor is necessary for regulating neuronal growth, cell migration, gene expression, differentiation, and cell death during development of the central and peripheral nervous system. The signal transduction mechanisms and components leading to NGF receptor multiple signals are complex and not well understood. In contrast to other members of the neurotrophin receptors family (TrkA, TrkB and TrkC tyrosine kinases), NGF receptor lacks intrinsic catalytic activity.[2] It is suggested that nerve growth factor receptor interacts with TrkA to form high affinity binding sites and to modulate TrkA signaling.

Nerve Growth Factor Receptor belongs to the TNF receptor superfamily which includes TNFR, CD40, and Fas.[6,7] These receptors all have an intracellular death domain and can couple to parallel signaling pathways leading to apoptotic cell death or activation of the transcription factor NF-κB. NGF receptor plays a central role in the regulation of cell number by apoptosis in the developing CNS.[1,8] During early development, activation of NGF receptor by NGF induces apoptotic cell death in some neuronal cells, probably through activation of the sphingomyelinase/ceramide pathway, the ICE-like protease and the JNK pathway.[8-10] In rat Schwann cells, NGF binding to nerve growth factor receptor activates NF-κB, possibly to modulate Schwann cell migration during nerve regeneration.[6]

Reagent

Nerve Growth Factor Receptor/Fc Chimera is supplied as approximately 50 µg of protein lyophilized from a 0.2 µm filtered solution of phosphate buffered saline (PBS) containing 2.5 mg of bovine serum albumin.

Preparation Instructions

Reconstitute the contents of the vial using sterile phosphate buffered saline (PBS) containing at least 0.1 % human serum albumin or bovine serum albumin. Prepare a stock solution of no less than 50 µg/ml.

Storage/Stability

Store at –20 °C. Upon reconstitution, store at 2 ° to 8 °C for one month. For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended.

Product Profile

The biological activity of NGF receptor/Fc chimera is measured by its ability to inhibit NGF-induced proliferation of TF-1 cells. The ED_{50} for this effect is generally 0.2 to 0.6 µg/ml. The ED_{50} is defined as the effective concentration of growth factor that elicits a 50 % increase in cell growth in a cell based bioassay.
Purity: >95 % as determined by SDS-PAGE, visualized by silver stain.
Endotoxin: < 0.1 ng/µg of protein, determined by the LAL method.

References

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