

Product Information

Nerve Growth Factor Receptor (NGF R, p75 Neurotrophin R)/Fc Chimera

Mouse, Recombinant

Expressed in mouse NSO cells

Product Number **N 9411**

Product Description

Recombinant Mouse Nerve Growth Factor Receptor (NGF R, p75 Neurotrophin R)/Fc Chimera is a chimeric protein expressed in a mouse myeloma cell line, NSO. A DNA sequence encoding the signal peptide from human CD33 joined with the extracellular domain of mouse nerve growth factor receptor (NGF R)¹ is fused to the Fc region of human IgG1 via a peptide linker. Mature recombinant mouse NGF R /Fc is a disulfide-linked homodimeric protein. Based on N-terminal amino acid sequencing, the mature protein starts at Gly 17. The recombinant mouse NGF R/Fc monomer has a calculated molecular mass 50.4 kDa. As a result of glycosylation, recombinant mouse NGF receptor/Fc migrates with an apparent molecular mass of 75-100 kDa 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 R cDNA contains a 427 amino acid residue precursor protein with a 28 amino acid residue signal peptide, a 222 amino acid residue extracellular domain, a 22 amino acid residue trans-membrane domain, and a 155 amino acid residue intracellular domain. The NGF receptor, a potent NGF antagonist, is a 75 kDa, type I transmembrane protein consisting of an extracellular domain, which contains four cysteine-rich domains responsible for ligand binding. The cytoplasmic region of the receptor contains a subtype 2 death domain.⁴

Nerve growth factor receptor is expressed widely during development and in the adult. Expression occurs in both neuronal and non-neuronal cells. 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. NGF R, belonging to the tumor necrosis factor (TNF) receptor superfamily, was originally reported to function as a regulator of TrkA activity.^{5,6} Studies have shown that NGF R will also signal by itself. The NGF receptor plays a central role in the regulation of cell number by apoptosis in the

developing CNS.⁷ During early development, activation of the 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.⁷⁻⁹ In rat Schwann cells, NGF binding to nerve growth factor receptor activates NF- κ B, possibly to modulate Schwann cell migration during nerve regeneration.⁵

Reagent

Recombinant Mouse Nerve Growth Factor Receptor/Fc Chimera is supplied as approximately 50 μ g of protein lyophilized from a 0.2 μ m filtered solution of phosphate buffered saline (PBS).

Storage/Stability

Store the lyophilized product at -20°C . Upon reconstitution, this product in the presence of a carrier protein can be stored at -20°C . For extended storage, freeze in working aliquots. Repeated freezing and thawing is not recommended.

Preparation Instructions

Reconstitute the contents of the vial using 0.2 μ m filtered phosphate buffered saline. Prepare a stock solution of no less than 100 μ g/ml. The carrier-free protein should be used immediately upon reconstitution to avoid losses in activity due to non-specific binding to the inside surface of the vial. For long term storage as a dilute solution, a carrier protein such as 0.1% human serum albumin or bovine serum albumin should be added to the vial.

Product Profile

The biological activity of NGF receptor/Fc chimera is measured by its ability to inhibit recombinant mouse β -NGF-induced proliferation of TF-1 cells. The ED₅₀ for this effect is measured in the presence of 2 ng/ml of recombinant mouse β -NGF.

Endotoxin: < 1.0 EU (endotoxin units)/ μ g of protein as determined by the LAL method.

References

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