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Product Information

Anti-Nerve Growth Factor Receptor/TNFRSF16
produced in goat, affinity isolated antibody

Catalog Number **N5788**

Product Description

Anti-Nerve Growth Factor Receptor/TNFRSF16 (rmNGF R) is produced from goats immunized with purified, NS0-derived, recombinant mouse nerve growth factor receptor extracellular domain (GeneID 18053). Mouse NGF R specific IgG was purified by mouse NGF R affinity chromatography.

Anti-Nerve Growth Factor Receptor/TNFRSF16 recognizes mouse NGF R. Applications include immunoblotting and immunohistochemistry. In Western blots, this antibody shows ~5% cross-reactivity with rhNGF R.

Neurotrophic factors[14,15] control the survival, differentiation, and maintenance of neurons in the peripheral and central nervous systems, and of other neural crest-derived cell types. Developing sympathetic neurons are absolutely dependent upon nerve growth factor (NGF) during the period of target competition *in vivo*. During this neonatal development window, NGF is believed to bind to its cognate receptors on the terminals of sympathetic neurons and to regulate their level of target innervation by two primary mechanisms. First, NGF stimulates terminal growth of sympathetic neurons thereby regulating the level of target innervation. Second, NGF, in conjunction with other neurotrophins, serves as discriminator allowing the elimination of neurons that have failed to sequester adequate target territory.

Neurotrophic factors, like all polypeptide hormones, deliver their message to the cell interior via interaction with cell surface receptors. They interact with multicomponent receptors consisting of several distinct protein subunits. NGF binds to two different receptors: the low affinity surface receptor p75 neurotrophin receptor (also known as NGFR p75, $p75^{NGFR}$, and $p75^{NTR}$) and the receptor tyrosine kinase TrkA, each with distinct signaling capabilities.[14] Although multimeric receptor complexes and functional interactions between both receptors have been observed, it is clear that NGF can bind to and elicit biological actions through each of these two receptors independently.[14]

Other neurotrophins (GDNF NT-3 and NT-4) are able to bind to NGFR p75 with similar affinities. However, the receptor is in fact able to distinguish among the different neurotrophins. Thus, for instance, NGF, but not BDNF nor NT-3, activates a downstream signaling pathway through the receptor in Schwann cells and oligodendrocytes.[14]

The human NGFR p75 has a hydrophobic signal sequence, a single N-linked glycosylation site, four cysteine-rich repeat units of approximately 40 amino acids in the extracellular domain, a serine- and threonine-rich region which might have O-linked glycosylation, a single transmembrane domain, and a 155-amino acid cytoplasmic domain.[15] The extracellular domain of NGFR p75 has homology to the extracellular domains of B-lymphocyte activation molecule Bp50 and tumor necrosis factor receptor.[3] It appears that NGFR p75 enhances the NGF binding affinity of the proto-oncogene product $p140^{trk}$ and may also modulate the kinase activity of $p140^{trk}$ and play a role in signal transducton.[3] In addition, like other members of this family of receptors, NGFR p75 signals on its own and mediates apoptosis in certain cellular contexts. NGFR p75 contains a “death domain” motif, which has been implicated in binding or activating death effector molecules. Specifically, neurotrophin binding to NGFR p75 stimulates generation of ceramide, activation and translocation of NF-κB to the nucleus, and enhancement of Jun kinase (JNK) activity. NGF and NGFR p75 have been the subjects of extensive studies. Antibodies reacting specifically with NGFR p75 are useful tools in the detection and characterization of NGFR p75 and enhance our understanding of a wide range of phenomena in the development, plasticity, and repair of the nervous system.

Reagent

Lyophilized from 0.2 μm-filtered solution in phosphate buffered saline containing carbohydrates.

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

Preparation Instructions
To one vial of lyophilized powder, add 1 mL of 0.2 μm filtered PBS to produce a 0.1 mg/mL stock solution. If aseptic technique is used, no further filtration should be needed for use in cell culture environments.

Storage/Stability
Prior to reconstitution, store at –20 °C. The reconstituted product may be stored at 2–8 °C for up to one month. For extended storage, freeze in working aliquots at –20 °C. Repeated freezing and thawing, or storage in frost-free freezers, is not recommended.

Product Profile
Immunoblotting: a working antibody concentration of 2 μg/mL is recommended.

Immunohistochemistry: a working concentration of 5-15 μg/mL is recommended for use.

Note: In order to obtain the best results using various techniques and preparations, determination of optimal working dilutions by titration test is recommended.

Endotoxin: <0.2 EU/μg antibody as determined by the LAL method.

References

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