

## NGFR/p75NTR Protein, Rat, Recombinant (His)

### General Information

Synonyms:	nerve growth factor receptor (TNFR superfamily, member 16)
Protein Construction:	A DNA sequence encoding the Rat NGFR (P07174) (Met1-Ile253) was expressed with a polyhistidine tag at the C-terminus. Predicted N terminal: Lys 30
Species:	Rat
Expression Host:	HEK293 Cells
Accession:	P07174
Molecular Weight:	25.34 kDa (predicted); 59.0 kDa (reducing conditions)

### QC Testing

Biological Activity:	Activity testing is in progress. It is theoretically active, but we cannot guarantee it. If you require protein activity, we recommend choosing the eukaryotic expression version first.
Purity:	≥ 95 % as determined by SDS-PAGE. ≥ 95 % as determined by SEC-HPLC.
Endotoxin:	< 1.0 EU/μg of the protein as determined by the LAL method.
Formulation:	Lyophilized from a solution filtered through a 0.22 μm filter, containing PBS, pH 7.4. Typically, a mixture containing 5% to 8% trehalose, mannitol, and 0.01% Tween 80 is incorporated as a protective agent before lyophilization.

### Preparation and Storage

**Reconstitution:**  
A Certificate of Analysis (CoA) containing reconstitution instructions is included with the products. Please refer to the CoA for detailed information.

**Stability & Storage:**

It is recommended to store recombinant proteins at -20°C to -80°C for future use. Lyophilized powders can be stably stored for over 12 months, while liquid products can be stored for 6-12 months at -80°C. For reconstituted protein solutions, the solution can be stored at -20°C to -80°C for at least 3 months. Please avoid multiple freeze-thaw cycles and store products in aliquots.

Actual storage temperature shall be subject to the COA.

**Shipping:**

In general, lyophilized powders are shipped with blue ice, while solutions are shipped with dry ice.

### Protein Background

Nerve growth factor receptors (NGFRs) belong to a large growth factor receptor family. NGFR includes two types of receptors: high-affinity nerve growth factor receptor and low-affinity nerve growth factor receptor. The high-affinity nerve growth factor receptor is also referred to as the Trk family whose members are bound by some neurotrophins with high affinity. Nerve growth factor binds with TrkA after being released from target cells, the NGF / TrkA complex is subsequently trafficked back to the cell body. The Low-affinity nerve growth factor receptor also

named p75 which binds with all kinds of neurotrophins with low affinity. All four kinds of neurotrophins, including Nerve growth factor, Brain-derived neurotrophic factor, Neurotrophin-3, and Neurotrophin-4 bind to the p75. Studies have proved that NGFR acts as a molecular signal switch that determines cell death or survival by three steps. First, pro-nerve growth factor (prNGF) triggers cell apoptosis by its high-affinity binding to p75NTR, while NGF induces neuronal survival with low-affinity binding. Second, p75NTR mediates cell death by combining with co-receptor Sortilin, whereas it promotes neuronal survival through combination with prNGF. Third, the release of the intracellular domain chopper or cleavage short p75 NTR can independently initiate neuronal apoptosis.

### Reference

- Chen LW, et al. (2008) The proNGF-p75NTR-sortilin signalling complex as new target for the therapeutic treatment of Parkinson's disease. *CNS Neurol Disord Drug Targets*. 7(6): 512-23.
- Deponti D, et al. (2009) The low-affinity receptor for neurotrophins p75NTR plays a key role for satellite cell function in muscle repair acting via RhoA. *Mol Biol Cell*.20(16): 3620-7.
- Ken-ichiro K, et al. (2004) Necdin-related MAGE proteins differentially interact with the E2F1 transcription factor and the p75 neurotrophin receptor. *J Biol Chem*. 279 (3): 1703-12.

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