

## TrkA Protein, Mouse (HEK293, Fc)

Cat. No.:	HY-P76115
Synonyms:	High affinity nerve growth factor receptor; Trk-A; NTRK1; MTC; TRK
Species:	Mouse
Source:	HEK293
Accession:	Q3UFB7 (M1-G420)
Gene ID:	18211
Molecular Weight:	Approximately 116 kDa

### PROPERTIES

Biological Activity	The enzyme activity of this recombinant protein is testing in progress, we cannot offer a guarantee yet.
Appearance	Lyophilized powder.
Formulation	Lyophilized from a 0.2 $\mu$ m filtered solution of PBS, pH 7.4. Normally 5 % - 8 % trehalose, mannitol and 0.01% Tween 80 are added as protectants before lyophilization.
Endotoxin Level	<1 EU/ $\mu$ g, determined by LAL method.
Reconstitution	It is not recommended to reconstitute to a concentration less than 100 $\mu$ g/mL in ddH <sub>2</sub> O.
Storage & Stability	Stored at -20°C for 2 years. After reconstitution, it is stable at 4°C for 1 week or -20°C for longer (with carrier protein). It is recommended to freeze aliquots at -20°C or -80°C for extended storage.
Shipping	Room temperature in continental US; may vary elsewhere.

### DESCRIPTION

#### Background

TrkA Protein is a receptor tyrosine kinase that plays a crucial role in the development and maturation of the central and peripheral nervous systems by regulating the proliferation, differentiation, and survival of sympathetic and sensory neurons. It serves as a high-affinity receptor for NGF, which is its primary ligand, and can also be activated by NTF3/neurotrophin-3. While NTF3 only supports axonal extension through NTRK1, it does not have an impact on neuron survival. Upon binding to dimeric NGF ligands, TrkA undergoes homodimerization, autophosphorylation, and activation. This activation leads to the recruitment, phosphorylation, and/or activation of various downstream effectors such as SHC1, FRS2, SH2B1, SH2B2, and PLCG1, which in turn regulate distinct overlapping signaling pathways that drive cell survival and differentiation. Specifically, through SHC1 and FRS2, TrkA activates a GRB2-Ras-MAPK cascade that controls cell differentiation and survival. Additionally, through PLCG1, TrkA regulates NF-Kappa-B activation and the transcription of genes involved in cell survival. Moreover, TrkA also controls a Ras-PI3 kinase-AKT1 signaling cascade, mediated by SHC1 and SH2B1, which further contributes to cell survival. In the absence of ligand and activation, TrkA may promote cell death, making the survival of neurons dependent on trophic factors.

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**Caution: Product has not been fully validated for medical applications. For research use only.**

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