### General Information

**Gene Name Synonym:**

NTRK1

**Protein Construction:**

A DNA sequence encoding the rat NTRK1 (P35739-Isoform TrkA-II)(Met1-Pro418) was expressed with the Fc region of human IgG1 at the C-terminus.

**Source:**

Rat

**Expression Host:**

HEK293 Cells

**QC Testing**

**Purity:**

> 95 % as determined by SDS-PAGE

**Bio Activity:**

Measured by its ability to inhibit NGF-induced proliferation of TF?1 human erythroleukemic cells. The ED50 for this effect is typically 0.01-0.1 μg/mL in the presence of 10 ng/mL of recombinant mouse NGF.

**Endotoxin:**

< 1.0 EU per μg of the protein as determined by the LAL method

**Stability:**

Samples are stable for up to twelve months from date of receipt at -70 ºC

**Predicted N terminal:**

Ala 33

**Molecular Mass:**

The recombinant rat NTRK1/Fc is a disulfide-linked homodimer. The reduced monomer comprises 627 amino acids and has a predicted molecular mass of 69.2 kDa. The apparent molecular mass of the protein is approximately 92-102 kDa in SDS-PAGE under reducing conditions.

**Formulation:**

Lyophilized from sterile PBS, pH 7.4.

Normally 5% - 8% trehalose, mannitol and 0.01% Tween80 are added as protectants before lyophilization. Specific concentrations are included in the hardcopy of COA. Please contact us for any concerns or special requirements.

**Usage Guide**

**Storage:**

Store it under sterile conditions at -20 ºC to -80 ºC upon receiving. Recommend to aliquot the protein into smaller quantities for optimal storage.

Avoid repeated freeze-thaw cycles.

**Reconstitution:**

Detailed reconstitution instructions are sent along with the products.

### SDS-PAGE:

![SDS-PAGE](image)

### Protein Description

TRKA is a member of the neurotrophic tyrosine kinase receptor (NTKR) family. It is a membrane-bound receptor that, upon neurotrophin binding, phosphorylates itself and members of the MAPK pathway. Isoform TrkA-III promotes angiogenesis and has oncogenic activity when overexpressed. Isoform TrkA-I is found in most non-neuronal tissues. Isoform TrkA-II is primarily expressed in neuronal cells. TrkA-III is specifically expressed by pluripotent neural stem and neural crest progenitors. The presence of NTRK1 leads to cell differentiation and may play a role in specifying sensory neuron subtypes. Mutations in TRKA gene have been associated with congenital insensitivity to pain, anhidrosis, self-mutilating behavior, mental retardation and cancer. It was originally identified as an oncogene as it is commonly mutated in cancers, particularly colon and thyroid carcinomas. TRKA is required for high-affinity binding to, neurotrophin-3 and neurotrophin-4/5 but not brain-derived neurotrophic factor (BDNF). Known substrates for the Trk receptors are SHC1, PI 3-kinase, and PLC-gamma-1. NTRK1 has a crucial role in the development and function of the nociceptive receptor system as well as establishment of thermal regulation via sweating. It also activates ERK1 by either SHC1- or PLC-gamma-1-dependent signaling pathway. Defects in NTRK1 are a cause of congenital insensitivity to pain with anhidrosis and thyroid papillary carcinoma.

### References