Product datasheet

Anti-TrkA antibody ab8871

Overview

Product name  Anti-TrkA antibody
Description  Rabbit polyclonal to TrkA
Host species  Rabbit
Tested applications  Suitable for: IP, WB, IHC (PFA fixed), IHC-FoFr
Species reactivity  Reacts with: Rat
Immunogen  Extracellular fragment from the rat Trk A receptor (amino acids 1-416)
Positive control  rat dorsal root ganglion, rat brain tissue (eg. supra-optic nucleus)
General notes  Concentration may vary depending on the batch. Current batch concentration is 3.8mg/ml.

Properties

Form  Liquid
Storage buffer  pH: 7.40
  Constituents: PBS, 0.81% Sodium chloride, 0.16% Sodium phosphate, 0.02% Potassium chloride, 0.04% Potassium phosphate
  No preservative, sterile filtered
Purity  Protein A purified
Clonality  Polyclonal
Isotype  IgG

Applications

Our Abpromise guarantee covers the use of ab8871 in the following tested applications.
The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

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**Function**

Receptor tyrosine kinase involved in the development and the maturation of the central and peripheral nervous systems through regulation of proliferation, differentiation and survival of sympathetic and sensory neurons. High affinity receptor for NGF which is its primary ligand, it can also bind and be activated by NTF3/neurotrophin-3. However, NTF3 only supports axonal extension through NTRK1 but has no effect on neuron survival. Upon dimeric NGF ligand-binding, undergoes homodimerization, autophosphorylation and activation. Recruits, phosphorylates and/or activates several downstream effectors including SHC1, FRS2, SH2B1, SH2B2 and PLCG1 that regulate distinct overlapping signaling cascades driving cell survival and differentiation. Through SHC1 and FRS2 activates a GRB2-Ras-MAPK cascade that regulates cell differentiation and survival. Through PLCG1 controls NF-Kappa-B activation and the transcription of genes involved in cell survival. Through SHC1 and SH2B1 controls a Ras-PI3 kinase-AKT1 signaling cascade that is also regulating survival. In absence of ligand and activation, may promote cell death, making the survival of neurons dependent on trophic factors. Isoform TrkA-III is resistant to NGF, constitutively activates AKT1 and NF-kappa-B and is unable to activate the Ras-MAPK signaling cascade. Antagonizes the anti-proliferative NGF-NTRK1 signaling that promotes neuronal precursors differentiation. Isoform TrkA-III promotes angiogenesis and has oncogenic activity when overexpressed.

**Tissue specificity**

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.

**Involvement in disease**

Congential insensitivity to pain with anhidrosis
Chromosomal aberrations involving NTRK1 are found in papillary thyroid carcinomas (PTCs) (PubMed:2869410, PubMed:7565764, PubMed:1532241). Translocation t(1;3)(q21;q11) with TFG generates the TRKT3 (TRK-T3) transcript by fusing TFG to the 3'-end of NTRK1 (PubMed:7565764). A rearrangement with TPM3 generates the TRK transcript by fusing TPM3 to the 3'-end of NTRK1 (PubMed:2869410). An intrachromosomal rearrangement that links the protein kinase domain of NTRK1 to the 5'-end of the TPR gene forms the fusion protein TRK-T1. TRK-T1 is a 55 kDa protein reacting with antibodies against the C-terminus of the NTRK1 protein (PubMed:1532241).

**Sequence similarities**

Belongs to the protein kinase superfamily. Tyr protein kinase family. Insulin receptor subfamily.
Contains 2 Ig-like C2-type (immunoglobulin-like) domains.
Contains 2 LRR (leucine-rich) repeats.
Contains 1 LRRCT domain.
Contains 1 protein kinase domain.

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### Application

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<tr>
<td><strong>IP</strong></td>
<td>Use at an assay dependent concentration. Use at a concentration of 2 - 5 µg/30µl Protein A sepharose per sample. Incubate for 2-3 hours at 4°C, then wash the Sepharose beads four times with lysis buffer. Elute sepharose-bound proteins in 2x Laemmli Sample buffer.</td>
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<tr>
<td><strong>WB</strong></td>
<td>Use a concentration of 1 µg/ml.</td>
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<tr>
<td>IHC (PFA fixed)</td>
<td>Use at an assay dependent concentration.</td>
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<tr>
<td>IHC-FoFr</td>
<td>1/3000.</td>
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**Target**
### Domain

The transmembrane domain mediates interaction with KIDINS220. The extracellular domain mediates interaction with NGFR.

### Post-translational modifications


Ubiquitinated. Undergoes polyubiquitination upon activation; regulated by NGFR. Ubiquitination regulates the internalization of the receptor.

### Cellular localization

Cell membrane. Early endosome membrane. Late endosome membrane. Internalized to endosomes upon binding of NGF or NTF3 and further transported to the cell body via a retrograde axonal transport. Localized at cell membrane and early endosomes before nerve growth factor (NGF) stimulation. Recruited to late endosomes after NGF stimulation. Colocalized with RAPGEF2 at late endosomes (By similarity).

### Images

Immunofluorescent staining for TrkA obtained with TrkA antibody (ab8871) in rat DRG. Picture taken with X10 objective. Animals were intracardially perfused with 4% PFA. Tissue was post-fixed overnight in the same fixative, cryoprotected in 20% sucrose and frozen in OCT. Protocol: IHC on 30um cryostat sections. Primary antibody ab8871 was used at 1/3000 and incubated overnight at room temperature. Secondary antibody, Alexa fluor 488 at 1/1000, incubated for 2 hours at room temperature.

**All lanes**: Anti-TrkA antibody (ab8871) at 1/1000 dilution

**Lane 1**: Whole cell lysate prepared from rat PC12 cells, untreated.

**Lane 2**: Whole cell lysate prepared from rat PC12 cells, treated with 10 ng/ml NGF for 5 minutes.

Lysates/proteins at 200000 cells per lane.

**Secondary**

**All lanes**: HRP Goat anti-rabbit at 1/10000 dilution

**Observed band size**: 110,140 kDa

**why is the actual band size different from the predicted?**

**Additional bands at**: 65 kDa. We are unsure as to the identity of these extra bands.
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