# Rabbit Antibody to TrkB (phospho S478/S479): Affinity Purified

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| **Catalogue No.:** | R-1718-50 |
| **Description:** | The protein named TrkB (also named Neurotrophic tyrosine kinase receptor type 2 (NTRK2), GP145-TrkB or Tropomyosin-related kinase B is a receptor tyrosine kinase involved in the development and the maturation of the central and the peripheral nervous systems and is important in the regulation of neuron survival, proliferation, migration, differentiation, and synapse formation and plasticity. TrkB may also play a role in neutrophin-dependent calcium signaling in glial cells and mediate communication between neurons and glia. TrkB is the primary receptor for BDNF (brain-derived neurotrophic factor. TrkB also binds NT4 and NT3 but less efficiently. Upon ligand-binding, the receptor undergoes homodimerization, autophosphorylation and activation. TrkB activation recruits, phosphorylates and/or activates several downstream effectors including SHC1, FRS2, SH2B1, SH2B2 and PLCG1 that each regulate distinct overlapping signaling cascades within cells. Through SHC1, FRS2, SH2B1, SH2B2, these activate the GRB2-Ras-MAPK cascade that regulates, for instance, neuronal differentiation including neurite outgrowth. These same effectors also control the Ras-PI3 kinase-AKT1 signaling cascade that mainly regulates growth and survival. TrkB, via activation of PLCG1 and the downstream protein kinase C-regulated pathways, also controls synaptic plasticity, and thus plays a role in learning and memory by regulating both short term synaptic function and long-term potentiation. PLCG1 also leads to NF-Kappa-B activation and the transcription of genes involved in cell survival. One such consequence is that PLCG1 activation via TrkB is able to suppress anoikis, the apoptosis resulting from loss of cell-matrix interactions. (Reference: www.uniprot.org) |
| **Related products:** | R-1717-50, Rabbit Antibody to TrkB (phospho Y816/Y817): Affinity Purified<br>M-1836-100, Mouse monoclonal antibody to Tyrosine Kinase Receptor B (TrkB, 179-190), extracellular domain [Clone BS379]: IgG<br><br>R-1834-100, Rabbit antibody to Tyrosine Kinase Receptor B (TrkB; 70-90): affinity purified |
| **Batch No.:** | See product label |
| **Unit size:** | 50 ug |
| **Antigen:** | Synthetic peptide immunogen, SNDDDSA[pS]PLHHIS |
| **Sequence:** | SNDDDSA[pS]PLHHIS |
| **Antigen Location:** | Corresponds to:<br><br>472SNDDDSASPLHHIS485 in human TrkB. Phosphorylated Serine target is amino acid number 479 in human.<br>and<br>471SNDDDSASPLHHIS484 in Uniprot# Q63604 (NTRK2_RAT) for rat. Phosphorylated Serine target is amino acid 478 in Rat. |
| **Other Names:** | GP145-TrkB; Neurotrophic tyrosine kinase receptor type 2; TrkB tyrosine kinase; |



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| | Tropomyosin-related kinase B |
| **Accession:** | Q16620 NTRK2_HUMAN |
| **Produced in:** | Rabbit |
| **Purity:** | Affinity purified, and absorbed. |
| **Applications:** | Western Blotting (0.5 - 2 ug/mL). Cell lysates or membrane preparations prepared from isolated brain or spinal cord tissues are recommended. Highly purified BSA is recommended for membrane blocking, although this antibody has been shown to work on membranes blocked with skim milk. Immunohistochemistry (1 - 5 ug/mL). Antibody has been shown to work on PFA fixed, frozen sections. TBS is preferred for buffer preparation. Other applications have not been tested. Biosensis recommends optimal dilutions/concentrations should be determined by the end user. |
| **Specificity:** | Human. Antibody has been shown to be specific for TrkB phosphorylated on serine 478 by phospho-peptide absorption dot blots, and on cell lysates from cell lines induced with retinoic acid and BDNF. Antibody detects a clear band in retinoic acid (RA) and BDNF-treated NSC34 cell lysates at 140 kDa only, indicating that the phosphorylated TrkB receptor is being detected. Additional non-specific bands at lower molecular weight are observed in both lysates with the antibody and these bands have not been characterized. |
| **Cross-reactivity:** | Human and mouse, other species not yet tested but it is predicted to react with rat and chicken TrkB-pS478/479 based on amino acid homology at the site. |
| **Form:** | Lyophilized from PBS, pH 7.2-7.6, containing 3% trehalose without preservatives. |
| **Reconstitution:** | Spin vial briefly before opening. Reconstitute in 50 uL sterile distilled water. Centrifuge to remove any insoluble material. |
| **Storage:** | Store lyophilised antibody at 2-8C. After reconstitution divide into aliquots and store at -20C for long-term storage. Store at 2-8C short-term (up to 4 weeks) with an appropriate antibacterial agent. Avoid repetitive freeze/thaw cycles. |
| **Expiry Date:** | 12 months after purchase if unopened |
| **Specific References:** | Turnbull MT et al. (2018), Acute Down-regulation of BDNF Signaling Does Not Replicate Exacerbated Amyloid-ß Levels and Cognitive Impairment Induced by Cholinergic Basal Forebrain Lesion. Front Mol Neurosci. 2018 Feb 22;11:51. Species: Mouse; Application: WB, hippocampal lysates.<br>Matusica D et al. (2016), Inhibition of motor neuron death in vitro and in vivo by a p75 neurotrophin receptor intracellular domain fragment. J Cell Sci. 2016 Feb 1;129(3):517-30. doi: 10.1242/jcs.173864. Epub 2015 Oct 26. Species: Mouse; Application: WB, spinal cord lysates. |
| **General References:** | Lai K-O. et al. (2012), Nature Neuroscience 15, 1506-1515, doi:10.1038/nn.3237.<br>Zhao L. et al. (2009), Journal of Cell Science 122, 3123-3136, doi: 10.1242/jcs.047712. |



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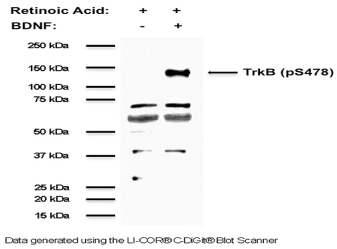


Western blot of TrkB (pS478) in mouse NSC34 cell lysates (20 µg/lane). TrkB receptor expression was induced by treating NSC34 cells with retinoic acid. TrkB receptor phosphorylation was triggered by adding BDNF protein to the culture medium, while control cells were left untreated.
R-1718-50 (1 µg/mL) detects a band at about 140 kDa in BDNF-treated cells only, corresponding to full-length TrkB protein phosphorylated at amino acid residue serine 478. Lower molecular weight bands are not characterized, but are likely unrelated to phosphorylation due to equal band intensities in BDNF-treated and untreated cells. SDS-PAGE: denatured and reduced; Transfer: Tris-Glycine buffer; Membrane: nitrocellulose (0.45 µm); Blocking: 5% skim milk in TBST, 1 hour at RT; Primary antibody: overnight at 4C; Secondary antibody: anti-rabbit-HRP (1/6000) 2 hours at RT; Detection: Chemiluminiscence.





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