



TrkB (Tyrosine Kinase Receptor B)

Catalog number

T8663-21

Supplier

United States Biological

The family of Trk receptor tyrosine kinases consists of TrkA, TrkB and TrkC. While the sequence of these family members is highly conserved, these family members are activated by different neurotrophins: TrkA by NGF, TrkB by BDNF or NT4 and TrkC by NT3. TrkA regulates proliferation and is important for development and maturation of the nervous system (1). Phosphorylation at Tyr490 is required for Shc association and activation of the Ras-MAP kinase cascade. Residues Tyr674/675 lie within the catalytic domain, and phosphorylation at this site reflects TrkA kinase activity (2-6). Point mutations, deletions and chromosomal rearrangements (chimera) cause ligand-independent receptor dimerization and activation of TrkA. Many malignancies (breast, colon, prostate and thyroid carcinomas and acute myeloid leukemia) have activated TrkA. Expression of TrkA in neuroblastomas is a good prognostic marker because it signals growth arrest and differentiation of cells originating from the neural crest (1).

The phosphorylation sites are conserved between TrkA and TrkB

Tyr490 of TrkA corresponds to Tyr512 in TrkB, and Tyr674/675 of TrkA to Tyr706/707 in TrkB of the human sequence (7). TrkB is overexpressed in tumors such as neuroblastoma, prostate adenocarcinoma and pancreatic ductal adenocarcinoma. In neuroblastomas overexpression of TrkB correlates with unfavorable disease outcome when autocrine loops signaling tumor survival are potentiated by additional overexpression of brain-derived neurotrophic factor (BDNF). An alternatively spliced truncated TrkB isoform lacking the kinase domain is overexpressed in Wilms' tumors and this isoform may act as a dominant-negative to TrkB signaling (8).

Applications

Suitable for use in Western Blot. Other applications not tested.

Recommended Dilution

Western Blot: 1:1000, incubate membrane with diluted antibody in 5% nonfat dry milk, 1X TBS, 0.1% Tween-20 at 4°C with gentle shaking, overnight.
Optimal dilutions to be determined by the researcher.

Storage and Stability:

May be stored at 4°C for short-term only. Aliquot to avoid repeated freezing and thawing. Store at -20°C. Aliquots are stable for 12 months. For maximum recovery of product, centrifuge the original vial after thawing and prior to removing the cap.

Immunogen

Synthetic peptide surrounding Pro50 of human TrkB.

Formulation

Supplied as a liquid in 10mM sodium HEPES, pH 7.5, 150mM sodium chloride, 0.1mg/ml BSA, <0.02% sodium azide, 50% glycerol.

Purity



Purified

Specificity

Recognizes endogenous levels of total human TrkB protein. Does not cross-react with TrkA. Species Crossreactivity: mouse and rat

Product Type

Mab

Source

human

Isotype

IgG

Grade

Purified

Applications

WB

Crossreactivity

Hu Mo Rt

Storage

-20°C

MW

90140

Reference

- (1) Pierotti, M.A. and Greco, A. (2006) Cancer Lett. 232, 90-98.
- (2) Segal, R.A. and Greenberg, M.E. (1996) Annu. Rev. Neurosci. 19, 463-489.
- (3) Stephens, R.M. et al. (1994) Neuron 12, 691-705.
- (4) Obermeier, A. et al. (1993) EMBO J. 12, 933-941.
- (5) Obermeier, A. et al. (1994) EMBO J. 13, 1585-1590.
- (6) Yao, R. and Cooper, G.M. (1995) Science 267, 2003-2006.
- (7) Huang, E.J. and Reichardt, L.F. (2003) Annu. Rev. Biochem, 72, 609-642.
- (8) Desmet, C.J. and Peeper, D.S. (2006) Cell Mol. Life Sci. 63, 755-759.