

TTBK1 (B-6): sc-374600

BACKGROUND

TTBK1 (Tau Tubulin kinase 1), also known as BDTK (brain-derived Tau kinase), is a 1,321 amino acid protein that contains one protein kinase domain and belongs to the serine/threonine protein kinase family. Localized to the cytoplasm and expressed at high levels in brain and at lower levels in testis and spinal cord, TTBK1 functions as a serine/threonine kinase that can phosphorylate Tau (a protein involved in Tubulin polymerization) on threonine, tyrosine and serine residues. Specifically, TTBK1 uses divalent cations, such as magnesium and manganese, to catalyze the ATP-dependent transfer of a phosphate group onto Tau, creating a phosphoprotein and ADP. Phosphorylation of Tau causes its aggregation and subsequent loss of function, suggesting an important role for TTBK1 in the control of Tubulin dynamics. Two isoforms of TTBK1 are expressed due to alternative splicing events.

REFERENCES

1. Takahashi, M., et al. 1995. A novel Tau-Tubulin kinase from bovine brain. *FEBS Lett.* 372: 59-64.
2. Nagase, T., et al. 2001. Prediction of the coding sequences of unidentified human genes. XX. The complete sequences of 100 new cDNA clones from brain which code for large proteins *in vitro*. *DNA Res.* 8: 85-95.
3. Sato, S., et al. 2006. Tau-Tubulin kinase 1 (TTBK1), a neuron-specific Tau kinase candidate, is involved in Tau phosphorylation and aggregation. *J. Neurochem.* 98: 1573-1584.
4. Kitano-Takahashi, M., et al. 2007. Expression, purification and crystallization of a human Tau-Tubulin kinase 2 that phosphorylates Tau protein. *Acta Crystallogr. Sect. F Struct. Biol. Cryst. Commun.* 63: 602-604.

CHROMOSOMAL LOCATION

Genetic locus: TTBK1 (human) mapping to 6p21.1; Ttbk1 (mouse) mapping to 17 C.

SOURCE

TTBK1 (B-6) is a mouse monoclonal antibody specific for an epitope mapping between amino acids 429-459 within an internal region of TTBK1 of human origin.

PRODUCT

Each vial contains 200 µg IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

TTBK1 (B-6) is available conjugated to agarose (sc-374600 AC), 500 µg/0.25 ml agarose in 1 ml, for IP; to HRP (sc-374600 HRP), 200 µg/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-374600 PE), fluorescein (sc-374600 FITC), Alexa Fluor® 488 (sc-374600 AF488), Alexa Fluor® 546 (sc-374600 AF546), Alexa Fluor® 594 (sc-374600 AF594) or Alexa Fluor® 647 (sc-374600 AF647), 200 µg/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor® 680 (sc-374600 AF680) or Alexa Fluor® 790 (sc-374600 AF790), 200 µg/ml, for Near-Infrared (NIR) WB, IF and FCM.

Blocking peptide available for competition studies, sc-374600 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% stabilizer protein).

APPLICATIONS

TTBK1 (B-6) is recommended for detection of TTBK1 isoforms 1 and 2 of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 µg per 100-500 µg of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

Suitable for use as control antibody for TTBK1 siRNA (h): sc-95141, TTBK1 siRNA (m): sc-154747, TTBK1 shRNA Plasmid (h): sc-95141-SH, TTBK1 shRNA Plasmid (m): sc-154747-SH, TTBK1 shRNA (h) Lentiviral Particles: sc-95141-V and TTBK1 shRNA (m) Lentiviral Particles: sc-154747-V.

Molecular Weight of full length TTBK1: 180-230 kDa.

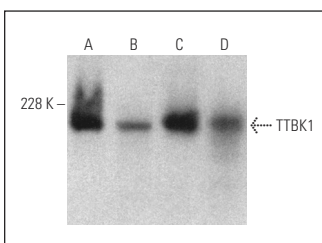
Molecular Weight of processed TTBK1: 80-105 kDa.

Positive Controls: Jurkat whole cell lysate: sc-2204, NIH/3T3 whole cell lysate: sc-2210 or SK-N-MC cell lysate: sc-2237.

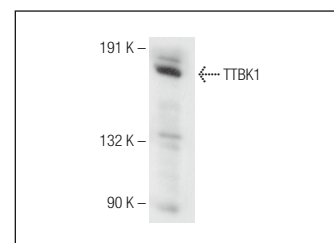
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgGκ BP-HRP: sc-516102 or m-IgGκ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker™ Molecular Weight Standards: sc-2035, UltraCruz® Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunoprecipitation: use Protein A/G PLUS-Agarose: sc-2003 (0.5 ml agarose/2.0 ml). 3) Immunofluorescence: use m-IgGκ BP-FITC: sc-516140 or m-IgGκ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz® Mounting Medium: sc-24941 or UltraCruz® Hard-set Mounting Medium: sc-359850.

DATA



TTBK1 (B-6) HRP: sc-374600 HRP. Direct western blot analysis of TTBK1 expression in Jurkat (A), NIH/3T3 (B), SK-N-MC (C) and TE671 (D) whole cell lysates.



TTBK1 (B-6): sc-374600. Western blot analysis of TTBK1 expression in Jurkat whole cell lysate.

STORAGE

Store at 4° C, **DO NOT FREEZE**. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

RESEARCH USE

For research use only, not for use in diagnostic procedures.

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