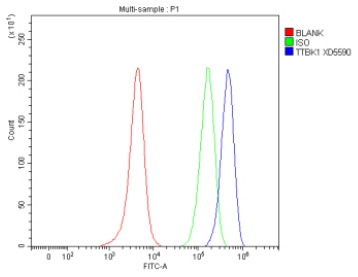
TTBK1 Antibody / Tau-tubulin kinase 1 (FY13256)

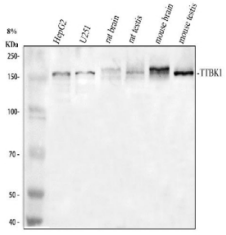
Catalog No.	Formulation	Size
FY13256	Adding 0.2 ml of distilled water will yield a concentration of 500 ug/ml	100 ug

Bulk quote request

Availability	1-2 days
Species Reactivity	Human, Mouse, Rat
Format	Lyophilized
Host	Rabbit
Clonality	Polyclonal (rabbit origin)
Isotype	Rabbit IgG
Purity	Immunogen affinity purified
Buffer	Each vial contains 4 mg Trehalose, 0.9 mg NaCl, 0.2 mg Na2HPO4.
UniProt	Q5TCY1
Applications	Western Blot: 0.25-0.5ug/ml Flow cytometry: 1-3ug/million cells ELISA: 0.1-0.5ug/ml
Limitations	This TTBK1 antibody is available for research use only.



Flow Cytometry analysis of SH-SY5Y cells using anti-TTBK1 antibody. Overlay histogram showing SH-SY5Y cells stained with (Blue line). To facilitate intracellular staining, cells were fixed with 4% paraformaldehyde and permeabilized with permeabilization buffer. The cells were blocked with 10% normal goat serum. And then incubated with rabbit anti-TTBK1 antibody (1 ug/million cells) for 30 min at 20oC. DyLight 488 conjugated goat anti-rabbit IgG (5-10 ug/million cells) was used as secondary antibody for 30 minutes at 20oC. Isotype control antibody (Green line) was rabbit IgG (1 ug/million cells) used under the same conditions. Unlabelled sample without incubation with primary antibody and secondary antibody (Red line) was used as a blank control.



Western blot analysis of TTBK1 using anti-TTBK1 antibody. Electrophoresis was performed on a 8% SDS-PAGE gel at 80V (Stacking gel) / 120V (Resolving gel) for 2 hours. Lane 1: human HepG2 whole cell lysates, Lane 2: human U251 whole cell lysates, Lane 3: rat brain tissue lysates, Lane 4: rat testis tissue lysates, Lane 5: mouse brain tissue lysates, Lane 6: mouse testis tissue lysates. After electrophoresis, proteins were transferred to a nitrocellulose membrane at 150 mA for 50-90 minutes. Blocked the membrane with 5% non-fat milk/TBS for 1.5 hour at RT. The membrane was incubated with rabbit anti-TTBK1 antibody at 0.5 ug/ml overnight at 4oC, then washed with TBS-0.1%Tween 3 times with 5 minutes each and probed with a goat anti-rabbit IgG-HRP secondary antibody at a dilution of 1:5000 for 1.5 hour at RT. The signal was developed using an ECL Plus Western Blotting Substrate. A predominant band is detected just above an approximately 150 kDa in all samples, running higher than the predicted ~143 kDa size but consistent with the reported 150 kDa apparent molecular weight of full length, heavily phosphorylated TTBK1 in the literature.

Description

TTBK1 antibody detects Tau-tubulin kinase 1, a serine/threonine kinase involved in microtubule regulation, neuronal polarization, and tau protein phosphorylation. The UniProt recommended name is Tau-tubulin kinase 1 (TTBK1). This neuron-specific kinase phosphorylates tau and tubulin to modulate microtubule dynamics and axonal stability, playing key roles in neurodevelopment and neurodegenerative disease.

Functionally, TTBK1 antibody identifies a 1,326-amino-acid cytoplasmic and axonal kinase that phosphorylates tau at multiple sites, including those associated with Alzheimer's disease pathology. TTBK1 regulates microtubule nucleation and cilia disassembly, contributing to neuronal morphogenesis and signaling. It is primarily expressed in the cerebral cortex, hippocampus, and cerebellum, where it modulates cytoskeletal organization and synaptic plasticity.

The TTBK1 gene is located on chromosome 6p21.1 and is expressed predominantly in neurons. Expression is upregulated during axonal outgrowth and differentiation, linking kinase activity to neural development. TTBK1 functions within signaling cascades involving CDK5 and GSK3beta, coordinating tau modification and cytoskeletal remodeling in neurons.

Pathologically, aberrant activation or overexpression of TTBK1 contributes to tau hyperphosphorylation, neurofibrillary tangle formation, and neuronal death in Alzheimer's disease and other tauopathies. Mutations or altered regulation may also affect primary cilia dynamics and neuronal polarity. Research using TTBK1 antibody supports studies in neurodegeneration, kinase signaling, and cytoskeletal biology.

TTBK1 antibody is validated for western blotting, immunofluorescence, and immunohistochemistry to detect neuronal kinases. NSJ Bioreagents provides TTBK1 antibody reagents optimized for research in tau phosphorylation, axonal transport, and neurodegenerative mechanisms.

Structurally, Tau-tubulin kinase 1 contains an N-terminal kinase domain with conserved ATP-binding and catalytic residues, and a C-terminal regulatory region that mediates substrate specificity and microtubule association. TTBK1 undergoes autophosphorylation and dynamic localization between cytoplasm and axon terminals. This antibody enables detailed examination of TTBK1's role in neuronal architecture and tau-related pathology.

Application Notes

Optimal dilution of the TTBK1 antibody should be determined by the researcher.

Immunogen

E.coli-derived human TTBK1 recombinant protein (Position: D285-A956) was used as the immunogen for the TTBK1 antibody.

Storage

After reconstitution, the TTBK1 antibody can be stored for up to one month at 4oC. For long-term, aliquot and store at -20oC. Avoid repeated freezing and thawing.

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