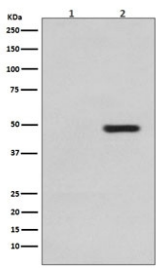
Phospho-Tau Antibody (pT231) [clone EIH-13] (RQ5331)

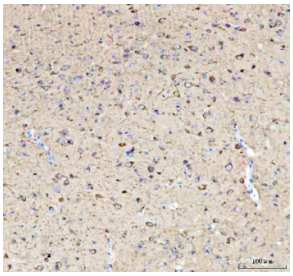
Catalog No.	Formulation	Size
RQ5331	Antibody in PBS with 0.02% sodium azide, 50% glycerol and 0.4-0.5mg/ml BSA	100 ul

Bulk quote request

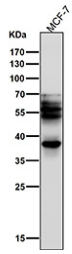
Availability	1-2 weeks
Species Reactivity	Human, Mouse, Rat
Format	Purified
Host	Rabbit
Clonality	Rabbit Monoclonal
Isotype	Rabbit IgG
Clone Name	EIH-13
Purity	Affinity purified
UniProt	P10636
Applications	Western Blot : 1:500 Immunohistochemistry (FFPE) : 1:50
Limitations	This phospho-Tau antibody (pT231) is available for research use only.



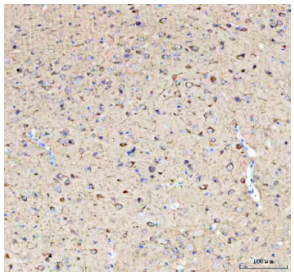
Western blot testing of 1) lysate from untreated SH-SY5Y cells and 2) lysate from sorbitol-treated SH-SY5Y cells, with phospho-Tau antibody (pT231). The expected molecular weight of phosphorylated Tau (Ser198) is approximately 45-70 kDa, corresponding to the major Tau isoforms, and lower molecular weight bands around ~35 kDa may represent truncated Tau fragments commonly observed in brain tissue.



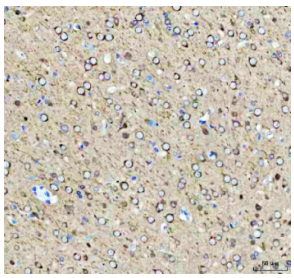
Western blot testing of 1) mouse brain and 2) rat brain tissue lysate with Phospho-Tau antibody. The expected molecular weight of phosphorylated Tau (Ser198) is approximately 45-70 kDa, corresponding to the major Tau isoforms, and lower molecular weight bands around ~35 kDa may represent truncated Tau fragments commonly observed in brain tissue.



Western blot testing of human MCF7 cell lysate with Phospho-Tau antibody. The expected molecular weight of phosphorylated Tau (Ser198) is approximately 45-70 kDa, corresponding to the major Tau isoforms, and lower molecular weight bands around ~35 kDa may represent truncated Tau fragments commonly observed in brain tissue.



IHC staining of FFPE mouse brain tissue with Phospho-Tau antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.



IHC staining of FFPE rat brain tissue with Phospho-Tau antibody, HRP-secondary and DAB substrate. HIER: boil tissue sections in pH8 EDTA for 20 min and allow to cool before testing.

Description

Phospho Tau antibody pT231 is a precise research reagent for examining phosphorylation dependent regulation of tau in neuronal biology and neurodegenerative disease. The encoded protein, tau, is a microtubule associated protein that stabilizes cytoskeletal structure and regulates axonal transport. In healthy neurons, tau phosphorylation is tightly controlled, but abnormal hyperphosphorylation at residues such as threonine 231 is a defining event in tauopathies including Alzheimer disease, frontotemporal dementia, and progressive supranuclear palsy. This antibody specifically detects tau only when threonine at position 231 is phosphorylated, enabling targeted analysis of early pathological changes.

Phosphorylation at threonine 231 lies within the proline rich domain of tau, a region that modulates microtubule binding and interactions with regulatory proteins. Modification at this site diminishes tauÃ¢Â€Â™s ability to stabilize microtubules, leading to cytoskeletal instability and impaired axonal transport. Studies suggest that phosphorylation at T231 is an early marker of tau pathology, preceding aggregation and tangle formation in disease progression. This makes phospho specific antibodies against T231 valuable for early biomarker research and therapeutic monitoring.

In Alzheimer disease, tau phosphorylated at T231 accumulates in neurons before the widespread deposition of neurofibrillary tangles. Detection of this modification in cerebrospinal fluid and brain tissue has been proposed as a diagnostic marker for early stages of disease. The presence of pT231 tau correlates with synaptic dysfunction, cognitive decline, and progression from mild cognitive impairment to dementia. These findings highlight the critical importance of this phosphorylation site in tau related neurodegeneration.

Regulation of threonine 231 phosphorylation involves kinases such as glycogen synthase kinase 3 beta and cyclin dependent kinase 5, while phosphatases including PP2A counteract these modifications. The dynamic balance of kinase and phosphatase activity dictates whether tau remains functional or enters pathological states. Phospho Tau antibody pT231 provides researchers with the ability to monitor this balance and evaluate the effects of therapeutic interventions

targeting tau kinases.

The Phospho Tau antibody pT231 is widely used in western blotting, immunohistochemistry, immunofluorescence, and ELISA to detect site specific phosphorylation. These applications support research into disease mechanisms, biomarker discovery, and drug development. For scientists investigating tauopathies, neuronal signaling, or cytoskeletal regulation, this antibody provides a highly specific and reliable detection tool. NSJ Bioreagents supplies validated antibodies designed to ensure reproducibility and accuracy in advanced molecular studies.

Application Notes

Optimal dilution of the phospho-Tau antibody (pT231) should be determined by the researcher.

Immunogen

A synthetic peptide specific to human Tau / MAPT (surrounding pT231) was used as the immunogen for the phospho-Tau antibody.

Storage

Store the phospho-Tau antibody (pT231) at -20oC.