

nitrate Tau (Tau-nY29): sc-66177

BACKGROUND

Tau, also known as MAPT (microtubule-associated protein Tau), MAPTL, MTBT1 or TAU, is a 758 amino acid protein that localizes to the cytoplasm, as well as to the cytoskeleton and the cell membrane, and contains four Tau/MAP repeats. Expressed in neuronal tissue and existing as multiple alternatively spliced isoforms, Tau functions to promote microtubule assembly and stability and is thought to be involved in the maintenance of neuronal polarity. Tau may also link microtubules with neural plasma membrane components and, addition to its role in microtubule stability, is also necessary for cytoskeletal plasticity. Tau is highly subject to a variety of post-translational modifications, including phosphorylation on serine and threonine residues, polyubiquitination (and subsequent proteasomal degradation) and glycation of specific Tau isoforms. Defects in the gene encoding Tau are associated with Alzheimer's disease, pallido-ponto-nigral degeneration (PPND), corticobasal degeneration (CBD) and progressive supranuclear palsy (PSP).

REFERENCES

1. Cross, D., et al. 1993. A Tau-like protein interacts with stress fibers and microtubules in human and rodent cultured cell lines. *J. Cell Sci.* 105: 51-60.
2. Lubke, U., et al. 1994. Microtubule-associated protein Tau epitopes are present in fiber lesions in diverse muscle disorders. *Am. J. Pathol.* 145: 175-188.
3. Singh, T.J., et al. 1996. Differential phosphorylation of human Tau isoforms containing three repeats by several protein kinases. *Arch. Biochem. Biophys.* 328: 43-50.
4. Hoshi, M., et al. 1996. Regulation of mitochondrial pyruvate dehydrogenase activity by Tau protein kinase I/glycogen synthase kinase 3 β in brain. *Proc. Natl. Acad. Sci. USA* 93: 2719-2723.
5. Malchiodi-Albedi, F., et al. 1997. Protein phosphatase inhibitors induce modification of synapse structure and Tau hyperphosphorylation in cultured rat hippocampal neurons. *J. Neurosci. Res.* 48: 425-438.
6. Andre, F., et al. 2007. Microtubule-associated protein Tau is a bifunctional predictor of endocrine sensitivity and chemotherapy resistance in estrogen receptor-positive breast cancer. *Clin. Cancer Res.* 13: 2061-2067.
8. Lace, G.L., et al. 2007. A brief history of Tau: the evolving view of the microtubule-associated protein Tau in neurodegenerative diseases. *Clin. Neuropathol.* 26: 43-58.

CHROMOSOMAL LOCATION

Genetic locus: MAPT (human) mapping to 17q21.31.

SOURCE

nitrate Tau (Tau-nY29) is a mouse monoclonal antibody raised against a synthetic peptide corresponding to amino acids 25-37 surrounding the nitrated Tyr29 residue of Tau of human origin.

RESEARCH USE

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

PRODUCT

Each vial contains 200 μ g IgG κ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

APPLICATIONS

nitrate Tau (Tau-nY29) is recommended for detection of Tau nitrated at Tyr29 of human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)] and immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500); non cross-reactive with wild-type Tau, Tau mutants singly nitrated at Tyr18, Tyr197, and Tyr394, or other proteins known to be nitrated in neurodegenerative diseases.

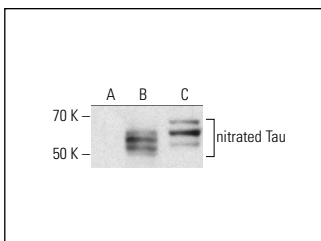
Molecular Weight of nitrated Tau: 50-70 kDa.

Positive Controls: chemically-treated HeLa whole cell lysate.

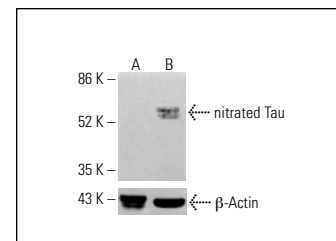
RECOMMENDED SUPPORT REAGENTS

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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



nitrate Tau (Tau-nY29): sc-66177. Western blot analysis of Tau expression in normal aged brain tissue extract (A), severely affected Alzheimer's Disease brain tissue extract (B), and paired helical filament Tau from severely affected Alzheimer's Disease brain tissue extract (C).



nitrate Tau (Tau-nY29): sc-66177. Western blot analysis of nitrated Tau expression in untreated (A) and chemically-treated (B) HeLa whole cell lysates. β -Actin (C4): sc-47778 used as loading control. Detection reagent used: m-IgG Fc BP-HRP: sc-525409.

SELECT PRODUCT CITATIONS

1. Wang, H.Y., et al. 2020. PTI-125 reduces biomarkers of Alzheimer's disease in patients. *J. Prev. Alzheimers Dis.* 7: 256-264.

STORAGE

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