

# p-Tau (Thr 181): sc-101816

## BACKGROUND

Tau can be phosphorylated by several protein kinases. Phosphorylation by Tau protein kinase II at Serine 404 is primarily responsible for the functional loss of Tau-mediated Tubulin polymerization. In addition, phosphorylation of microtubule-associated Tau results in the dissociation of Tau from the microtubules and Tubulin depolymerization. Serine 412 of Tau is modified by Tau protein kinase I/glycogen synthase kinase-3  $\beta$  (TPKI/GSK-3 $\beta$ ) to disrupt neuronal metabolism in anatomical areas vulnerable to Alzheimer's disease. TPKI/GSK-3 $\beta$  is expressed primarily in neurons and especially in neurites early in development, whereafter the distribution is concentrated mostly in the cell soma and the proximal neurite region.

## REFERENCES

1. Tashiro, K., et al. 1997. Somatodendritic localization of phosphorylated Tau in neonatal and adult rat cerebral cortex. *Neuroreport* 8: 2797-2801.
2. Iqbal, K., et al. 1998. Mechanisms of neurofibrillary degeneration and the formation of neurofibrillary tangles. *J. Neural Transm. Suppl.* 53: 169-180.
3. Zhong, J., et al. 1999. Hyperphosphorylated Tau in SY5Y cells: similarities and dissimilarities to abnormally hyperphosphorylated Tau from Alzheimer disease brain. *FEBS Lett.* 453: 224-228.
4. Hashiguchi, M., et al. 2000. 14-3-3  $\zeta$  is an effector of Tau protein phosphorylation. *J. Biol. Chem.* 275: 25247-25254.
5. Lesort, M., et al. 2000. Insulin-like growth factor-1 and insulin mediate transient site-selective increases in Tau phosphorylation in primary cortical neurons. *Neuroscience* 99: 305-316.
6. Iqbal, K., et al. 2000. Mechanism of neurofibrillary degeneration and pharmacologic therapeutic approach. *J. Neural Transm. Suppl.* 59: 213-222.
7. Taniguchi, T., et al. 2001. Phosphorylation of Tau is regulated by PKN. *J. Biol. Chem.* 276: 10025-10031.
8. Alonso, A., et al. 2001. Hyperphosphorylation induces self-assembly of Tau into tangles of paired helical filaments/straight filaments. *Proc. Natl. Acad. Sci. USA* 98: 6923-6928.

## CHROMOSOMAL LOCATION

Genetic locus: MAPT (human) mapping to 17q21.31; Mapt (mouse) mapping to 11 E1.

## SOURCE

p-Tau (Thr 181) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 181 of Tau of human origin.

## PRODUCT

Each vial contains 100  $\mu$ g IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

## STORAGE

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

## APPLICATIONS

p-Tau (Thr 181) is recommended for detection of Thr 181 phosphorylated Tau of human origin, correspondingly phosphorylated Thr 472 of mouse origin and correspondingly phosphorylated Thr 491 of rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunoprecipitation [1–2  $\mu$ g per 100–500  $\mu$ g of total protein (1 ml of cell lysate)], immunofluorescence and immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500).

Suitable for use as control antibody for Tau siRNA (h): sc-36614 and Tau siRNA (m): sc-36615.

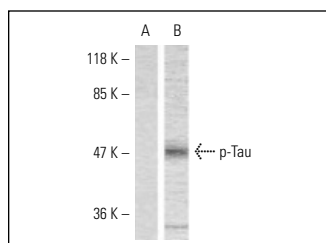
Molecular Weight of p-Tau: 46-68 kDa.

Positive Controls: rat hippocampal tissue or mouse brain tissue extract.

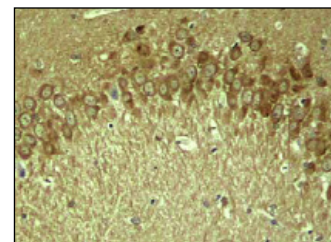
## RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use goat anti-rabbit IgG-HRP: sc-2004 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker™ Molecular Weight Standards: sc-2035, TBS Blotto B Blocking Reagent: sc-2335 (use 50 mM NaF, sc-24988, as diluent) 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 goat anti-rabbit IgG-FITC: sc-2012 (dilution range: 1:100-1:400) or goat anti-rabbit IgG-TR: sc-2780 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941. 4) Immunohistochemistry: use ImmunoCruz™: sc-2051 or ABC: sc-2018 rabbit IgG Staining Systems.

## DATA



Western blot analysis of phosphorylated Tau expression in mouse brain tissue whole cell lysates. Blots were probed with p-Tau (Thr 181): sc-101816 preincubated with cognate phosphorylated peptide (A) and p-Tau (Thr 181): sc-101816 (B).



p-Tau (Thr 181): sc-101816. Immunoperoxidase staining of formalin-fixed, paraffin-embedded rat hippocampal tissue showing cytoskeletal staining.

## RESEARCH USE

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

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) or our catalog for detailed protocols and support products.