

# p-Tau (Thr 212): sc-135643

## 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/MAPT 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, in addition to its role in microtubule stability, is also necessary for cytoskeletal plasticity. Tau is highly subject to a variety of posttranslational 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

- Hoshi, M., et al. 1996. Regulation of mitochondrial pyruvate dehydrogenase activity by Tau protein kinase I/ glycogen synthase kinase 3 in brain. *Proc. Natl. Acad. Sci. USA* 93: 2719-2723.
- 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.
- Tashiro, K., et al. 1997. Somatodendritic localization of phosphorylated Tau in neonatal and adult rat cerebral cortex. *Neuroreport* 8: 2797-2801.
- Iqbal, K., et al. 1998. Mechanisms of neurofibrillary degeneration and the formation of neurofibrillary tangles. *J. Neural. Transm. Suppl.* 53: 169-180.
- Haque, N., et al. 1999. Regulation of expression, phosphorylation and biological activity of Tau during differentiation in SY5Y cells. *Brain Res.* 838: 69-77.
- 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.
- Iqbal, K., et al. 2000. Mechanism of neurofibrillary degeneration and pharmacologic therapeutic approach. *J. Neural. Transm. Suppl.* 59: 213-222.
- Hashiguchi, M., et al. 2000. 14-3-3 $\zeta$  is an effector of Tau protein phosphorylation. *J. Biol. Chem.* 275: 25247-25254.
- Taniguchi, T., et al. 2001. Phosphorylation of Tau is regulated by PKN. *J. Biol. Chem.* 276: 10025-10031.

## CHROMOSOMAL LOCATION

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

## SOURCE

p-Tau (Thr 212) is a rabbit polyclonal antibody raised against a short amino acid sequence containing phosphorylated Thr 212 of Tau of human origin.

## PRODUCT

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

## APPLICATIONS

p-Tau (Thr 212) is recommended for detection of Thr 212 phosphorylated Tau isoforms Tau-3 and Tau-4 of human origin, other correspondingly phosphorylated Tau isoforms of human origin, and correspondingly phosphorylated Tau of mouse and rat origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) and immunoprecipitation [1-2  $\mu$ g per 100-500  $\mu$ g of total protein (1 ml of cell lysate)].

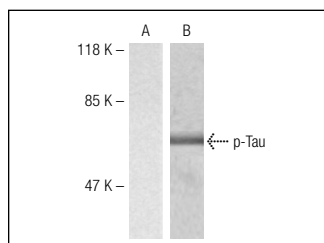
Suitable for use as control antibody for Tau siRNA (h): sc-36614, Tau siRNA (m): sc-36615, Tau shRNA Plasmid (h): sc-36614-SH, Tau shRNA Plasmid (m): sc-36615-SH, Tau shRNA (h) Lentiviral Particles: sc-36614-V and Tau shRNA (m) Lentiviral Particles: sc-36615-V.

Molecular Weight of p-Tau: 46-80 kDa.

## 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<sup>™</sup> compatible goat anti-rabbit IgG-HRP: sc-2030 (dilution range: 1:2000-1:5000), Cruz Marker<sup>™</sup> 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).

## DATA



Western blot analysis of phosphorylated Tau expression in mouse brain tissue extracts. Blots were probed with p-Tau (Thr 212): sc-135643 preincubated with cognate phosphorylated peptide (A) and p-Tau (Thr 212): sc-135643 (B).

## 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.