SANTA CRUZ BIOTECHNOLOGY, INC.

p-Tau (Ser 610): sc-16937

SANTA CRUZ BIOTECHNOLOGY

The Power to Question

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-3β) to disrupt neuronal metabolism in anatomical areas vulnerable to Alzheimer's disease. TPKI/GSK-3β 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. 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.
2. 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.
3. Tashiro, K., et al. 1997. Somatodendritic localization of phosphorylated Tau in neonatal and adult rat cerebral cortex. Neuroreport 8: 2797-2801.
4. Iqbal, K., et al. 1998. Mechanisms of neurofibrillary degeneration and the formation of neurofibrillary tangles. J. Neural. Transm. Suppl. 53: 169-180.
5. 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.
6. Iqbal, K., et al. 2000. Mechanism of neurofibrillary degeneration and pharmacologic therapeutic approach. J. Neural. Transm. Suppl. 59: 213-222.
7. Hashiguchi, M., et al. 2000. 14-3-3ζ is an effector of Tau protein phosphorylation. J. Biol. Chem. 275: 25247-25254.
8. Taniguchi, T., et al. 2001. Phosphorylation of Tau is regulated by PKN. J. Biol. Chem. 276: 10025-10031.
9. 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 17q21.1; Mapt (mouse) mapping to 11 E1.

SOURCE

p-Tau (Ser 610) is available as either goat (sc-16937) or rabbit (sc-16937-R) polyclonal affinity purified antibody raised against a short amino acid sequence containing phosphorylated Ser 610 of Tau of human origin.

STORAGE

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

PRODUCT

Each vial contains 200 µg IgG in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Blocking peptide available for competition studies, sc-16937 P, (100 µg peptide in 0.5 ml PBS containing < 0.1% sodium azide and 0.2% BSA).

APPLICATIONS

p-Tau (Ser 610) is recommended for detection of Ser 610 phosphorylated Tau of mouse, rat and human origin by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000), immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

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: mouse brain extract: sc-2253 or human brain extract.

RECOMMENDED SECONDARY REAGENTS

To ensure optimal results, the following support (secondary) reagents are recommended: 1) Western Blotting: use donkey anti-goat IgG-HRP: sc-2020 (dilution range: 1:2000-1:100,000) or Cruz Marker™ compatible donkey anti-goat IgG-HRP: sc-2033 (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) Immunofluorescence: use donkey anti-goat IgG-FITC: sc-2024 (dilution range: 1:100-1:400) or donkey anti-goat IgG-TR: sc-2783 (dilution range: 1:100-1:400) with UltraCruz™ Mounting Medium: sc-24941.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com or our catalog for detailed protocols and support products.