

Store at
-20°C

PhosphoPlus® Tau (Ser404) Antibody Duet

#82577



Cell Signaling
TECHNOLOGY®

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Entrez-Gene ID #4137
UniProt ID #P10636-8

New 05/18

For Research Use Only. Not For Use In Diagnostic Procedures.

Products Included	Product #	Quantity	Mol. Wt.	Isotype
Tau (D1M9X) XP® Rabbit mAb	46687	100 µl	50-80 kDa	Rabbit IgG
Phospho-Tau (Ser404) (D2Z4G) Rabbit mAb (IF preferred)	20194	100 µl	50-80 kDa	Rabbit IgG

See www.cellsignal.com for individual component applications, species cross-reactivity, dilutions and additional application protocols.

Description: PhosphoPlus® Duets from Cell Signaling Technology (CST) provide a means to assess protein activation status. Each Duet contains an activation-state and total protein antibody to your target of interest. These antibodies have been selected from CST's product offering based upon superior performance in specified applications.

Background: Tau is a heterogeneous microtubule-associated protein that promotes and stabilizes microtubule assembly, especially in axons. Six isoforms with different amino-terminal inserts and different numbers of tandem repeats near the carboxy terminus have been identified, and tau is hyperphosphorylated at approximately 25 sites by Erk, GSK-3, and CDK5 (1,2). Phosphorylation decreases the ability of tau to bind to microtubules. Neurofibrillary tangles are a major hallmark of Alzheimer's disease; these tangles are bundles of paired helical filaments composed of hyperphosphorylated tau. In particular, phosphorylation at Ser396 by GSK-3 or CDK5 destabilizes microtubules. Furthermore, research studies have shown that inclusions of tau are found in a number of other neurodegenerative diseases, collectively known as tauopathies (1,3). Investigators have shown that tau phosphorylation at Ser404 destabilizes microtubules and that tau is hyperphosphorylated at Ser404 in Alzheimer's disease (4-7).

Specificity/Sensitivity: Tau (D1M9X) XP® Rabbit mAb recognizes endogenous levels of total Tau protein. Phospho-Tau (Ser404) (D2Z4G) Rabbit mAb (IF preferred) recognizes endogenous levels of tau protein when phosphorylated at Ser404. This antibody detects single phosphorylation at Ser404, dual phosphorylation at Ser400/Ser404 or Thr403/Ser404, and triple phosphorylation at Ser400/Thr403/Ser404. This antibody does not detect peptides with single phosphorylation at Ser400 or Thr403, and dual phosphorylation at Ser400/Thr403.

Source/Purification: Monoclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Asp430 of human Tau protein or a synthetic phosphopeptide corresponding to residues surrounding Ser400/Thr403/Ser404 of human Tau protein.

Storage: Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA, 50% glycerol and less than 0.02% sodium azide. Store at -20°C. *Do not aliquot the antibody.*

Background References:

- (1) Johnson, G.V. and Stoothoff, W.H. (2004) *J Cell Sci* 117, 5721-9.
- (2) Hanger, D.P. et al. (1998) *J Neurochem* 71, 2465-76.
- (3) Bramblett, G.T. et al. (1993) *Neuron* 10, 1089-99.
- (4) Shiurba, R.A. et al. (1996) *Brain Res* 737, 119-32.
- (5) Hanger, D.P. et al. (1998) *J Neurochem* 71, 2465-76.
- (6) Evans, D.B. et al. (2000) *J Biol Chem* 275, 24977-83.
- (7) Bertrand, J. et al. (2010) *Neuroscience* 168, 323-34.

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Applications: W—Western IP—Immunoprecipitation IHC—Immunohistochemistry ChIP—Chromatin Immunoprecipitation IF—Immunofluorescence F—Flow cytometry E-P—ELISA-Peptide **Species Cross-Reactivity:** H—human M—mouse R—rat Hm—hamster Mk—monkey Mi—mink C—chicken Dm—D. melanogaster X—Xenopus Z—zebrafish B—bovine Dg—dog Pg—pig Sc—S. cerevisiae Ce—C. elegans Hr—Horse All—all species expected *Species enclosed in parentheses are predicted to react based on 100% homology.*