Revision 4

Store at -20C

#77348

Phospho-Tau (Ser214) (D1Q2X) Rabbit mAb

Cell Signaling TECHNOLOGY®

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Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W, IP	H M R	Endogenous	50-80	Rabbit IgG	#P10636-8	4137

Product Usage Information

Application	Dilution
Western Blotting	1:1000
Immunoprecipitation	1:50

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.

Specificity/Sensitivity

Phospho-Tau (Ser214) (D1Q2X) Rabbit mAb recognizes endogenous levels of Tau protein only when phosphorylated at Ser214.

Source / Purification

Monoclonal antibody is produced by immunizing animals with a synthetic peptide corresponding to residues surrounding Ser214 of human Tau protein.

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, glycogen synthase kinase-3 (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 (AD); these tangles are bundles of paired helical filaments (PHFs) 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).

Numerous kinases including PKA, CDK5, GSK3β and SGK1 have been shown to phosphorylate Tau at Ser214. In addition, investigators have shown that tau is phosphorylated at Ser214 in Alzheimer's disease and dementia with Lewy bodies (4-9). Investigators have shown that tau phosphorylation at Ser214 detaches tau protein from microtubules, protecting it against aggregation into Alzheimer paired helical filaments (10).

Background References

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3. Bramblett, G.T. et al. (1993) *Neuron* 10, 1089-99.
4. Illenberger, S. et al. (1998) *Mol Biol Cell* 9, 1495-512.
5. Götz, J. et al. (2001) *Science* 293, 1491-5.
6. Yang, Y.C. et al. (2006) *Mol Cell Biol* 26, 8357-70.
7. Liu, F. et al. (2006) *FEBS Lett* 580, 6269-74.
8. Zhu, B. et al. (2010) *Am J Physiol Lung Cell Mol Physiol* 299, L493-501.
9. Duka, V. et al. (2013) *PLoS One* 8, e75025.
10. Schneider, A. et al. (1999) *Biochemistry* 38, 3549-58.

Species Reactivity

Species reactivity is determined by testing in at least one approved application (e.g., western blot).

Western Blot Buffer

IMPORTANT: For western blots, incubate membrane with diluted primary antibody in 5% w/v BSA, 1X TBS, 0.1% Tween® 20 at 4°C with gentle shaking, overnight.

Applications Key

W: Western Blotting **IP:** Immunoprecipitation

Cross-Reactivity Key

H: Human **M:** Mouse **R:** Rat

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