

# Phospho-Tau (Thr181) (D9F4G) Rabbit mAb

✓ 100 µl  
(10 western blots)

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

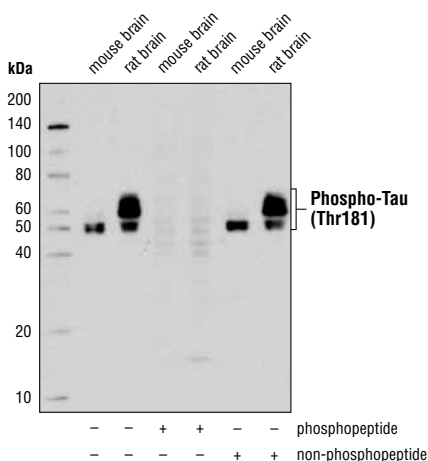
Applications W, IP, IHC-P Endogenous	Species Cross-Reactivity* H, M, R	Molecular Wt. 50-80 kDa	Isotype Rabbit IgG**
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**Background:** Tau is a heterogeneous microtubule-associated protein that promotes and stabilizes microtubule assembly, especially 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).

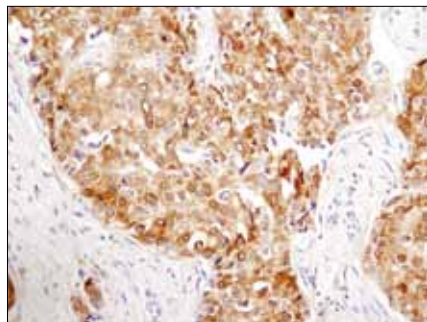
The cerebrospinal fluid concentration of Tau phosphorylated at Thr181 has been proposed to be a biomarker for the study of neurodegenerative disorders (4).

**Specificity/Sensitivity:** Phospho-Tau (Thr181) (D9F4G) Rabbit mAb recognizes endogenous levels of Tau protein only when phosphorylated at Thr181.

**Source/Purification:** Monoclonal antibody is produced by immunizing animals with a synthetic phosphopeptide corresponding to residues surrounding Thr181 of human Tau protein.



Western blot analysis of extracts from mouse and rat brain using Phospho-Tau (Thr181) (D9F4G) Rabbit mAb. The phospho-specificity of Phospho-Tau (Thr181) (D9F4G) Rabbit mAb was verified by peptide blocking using a phosphopeptide or non-phosphopeptide targeting residue Thr181.



Immunohistochemical analysis of paraffin-embedded human breast carcinoma using Phospho-Tau (Thr181) (D9F4G) Rabbit mAb.



Immunohistochemical analysis of paraffin-embedded mouse brain using Phospho-Tau (Thr181) (D9F4G) Rabbit mAb.

Entrez Gene ID #4137  
UniProt ID #P10636-8

**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.

\*Species cross-reactivity is determined by western blot.

\*\*Anti-rabbit secondary antibodies must be used to detect this antibody.

**Recommended Antibody Dilutions:**

Western blotting	1:1000
Immunoprecipitation	1:50
Immunohistochemistry (Paraffin)	1:100†
Unmasking buffer:	Citrate
Antibody diluent:	SignalStain® Antibody Diluent #8112
Detection reagent:	SignalStain® Boost (HRP, Rabbit) #8114

†Optimal IHC dilutions determined using SignalStain® Boost IHC Detection Reagent.

For product specific protocols please see the web page for this product at [www.cellsignal.com](http://www.cellsignal.com).

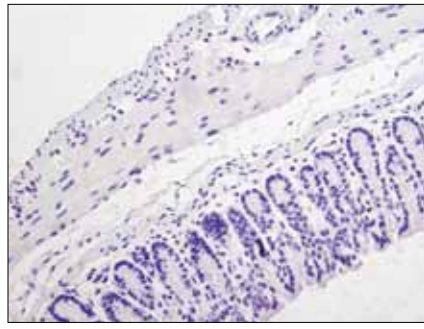
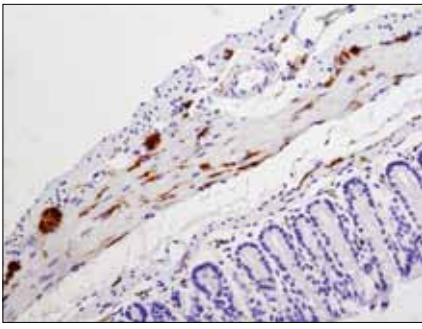
Please visit [www.cellsignal.com](http://www.cellsignal.com) for a complete listing of recommended companion products.

**Background References:**

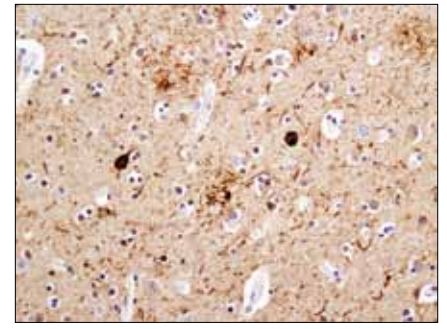
- (1) Johnson, G.V. and Stoothoff, W.H. (2004) *J. Cell Sci.* 117, 5721-5729.
- (2) Hanger, D. P. et al. (1998) *J. Neurochem.* 71, 2465-2476.
- (3) Bramblett, G. T. et al. (1993) *Neuron* 10, 1089-1099.
- (4) Mitchell, A.J. (2009) *J Neurol Neurosurg Psychiatry* 80, 966-75.

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

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*Immunohistochemical analysis of paraffin-embedded mouse colon, control (left) or  $\lambda$  phosphatase-treated (right), using Phospho-Tau (Thr181) (D9F4G) Rabbit mAb.*



*Immunohistochemical analysis of paraffin-embedded human Alzheimer's brain using Phospho-Tau (Thr181) (D9F4G) Rabbit mAb.*