

## Tau 4R Antibody



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For Research Use Only. Not for Use in Diagnostic Procedures.

Applications:	Reactivity:	Sensitivity:	MW (kDa):	Source/Isotype:	UniProt ID:	Entrez-Gene Id:
W	H M R	Endogenous	50-80	Rabbit	#P10636-6, #P10636-7, #P10636-8	4137

Product Usage Information	Application	Dilution
<b>Storage</b>	Western Blotting	1:1000
<b>Specificity/Sensitivity</b>	Supplied in 10 mM sodium HEPES (pH 7.5), 150 mM NaCl, 100 µg/ml BSA and 50% glycerol. Store at -20°C. Do not aliquot the antibody.	
<b>Source / Purification</b>	Tau 4R Antibody recognizes endogenous levels of total tau isoforms 6, 7, and 8 protein. This antibody does not cross-react with tau isoforms 2, 4, or 5.	
<b>Background</b>	Polyclonal antibodies are produced by immunizing animals with a synthetic peptide corresponding to residues surrounding amino acid Gly273 of isoform 8 of human tau protein. Antibodies are purified by protein A and peptide affinity chromatography.	
<b>Background References</b>	<p>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).</p> <p>Alternative splicing of exon 10 results in the expression of two groups of tau: three-repeat and four-repeat tau. Isoforms 2, 4, and 5 express three microtubule binding repeat domains (tau 3R) while isoforms 6, 7, and 8 express four microtubule binding repeat domains (tau 4R) (4). Expression of tau 3R and tau 4R in cells can be different in mild or pathological conditions. For example, tau 3R is preferentially expressed in Pick's disease (PiD) and corticobasal degeneration (CBD), while tau 3R and tau 4R are equally expressed in AD (5,6). The repeat-dependent tau has a different pattern of phosphorylation in different diseases, and also has the ability and patterns of aggregation (7-9).</p> <ol style="list-style-type: none"> <li>Johnson, G.V. and Stoothoff, W.H. (2004) <i>J Cell Sci</i> 117, 5721-9.</li> <li>Hanger, D.P. et al. (1998) <i>J Neurochem</i> 71, 2465-76.</li> <li>Bramblett, G.T. et al. (1993) <i>Neuron</i> 10, 1089-99.</li> <li>Šimić, G. et al. (2016) <i>Biomolecules</i> 6, 6.</li> <li>Tuerde, D. et al. (2018) <i>J Biol Chem</i> 293, 1781-93.</li> <li>Liu, C. and Götz, J. (2013) <i>PLoS One</i> 8, e84849.</li> <li>Weismiller, H.A. et al. (2018) <i>J Biol Chem</i> 293, 17336-48.</li> <li>Goedert, M. et al. (2019) <i>Cold Spring Harb Symp Quant Biol</i>, pii: 037580. doi: 10.1101/sqb.2018.83.037580.</li> <li>Kraus, A. et al. (2019) <i>Acta Neuropathol</i> 137, 585-98.</li> </ol>	

<b>Species Reactivity</b>	Species reactivity is determined by testing in at least one approved application (e.g., western blot).
<b>Western Blot Buffer</b>	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.
<b>Applications Key</b>	<b>W:</b> Western Blotting
<b>Cross-Reactivity Key</b>	<b>H:</b> Human <b>M:</b> Mouse <b>R:</b> Rat

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