

Purified anti-4R Tau Antibody (Previously Covance catalog# MMS-5020)

Catalog# / Size	823702 / 25 µL 823701 / 100 µL
Clone	5F9
Regulatory Status	RUO
Other Names	Microtubule-associated protein tau, PHF-tau, Paired Helical Filament tau
Previously	Covance Catalog# MMS-5020
Isotype	Mouse IgG1, λ
Description	<p>Tau proteins are microtubule-associated protein (MAPs) which are abundant in neurons of the central nervous system, but are also expressed at very low levels in CNS astrocytes and oligodendrocytes and elsewhere. One of tau's main functions is to modulate the stability of axonal microtubules. Tau is active primarily in the distal portions of axons providing microtubule stabilization as well as flexibility. Pathologies and dementias of the nervous system such as Alzheimer's disease feature tau proteins that have become defective and no longer stabilize microtubules properly. As a result, tau forms aggregates with specific structural properties referred to as Paired Helical Filaments (PHFs) that are a characteristic of many different types of dementias, known as tauopathies.</p>

Tau has two primary ways of controlling microtubule stability: isoforms and phosphorylation. Six tau isoforms exist in human brain tissue, and they are distinguished by the number of binding domains. Three isoforms have three binding domains and the remaining three have four binding domains. The binding domains are located in the carboxy-terminus of the protein and are positively-charged (for binding to the negatively-charged microtubule). Tau isoforms with four binding domains are better at stabilizing microtubules than those with three binding domains.

Thus, in the human brain, the tau proteins constitute a family of six isoforms with the range from 352-441 amino acids. They also differ in either zero, one or two inserts of 29 amino acids at the N-terminal part (exon 2 and 3), and three or four repeat-binding regions at the C-terminus. So, the longest isoform in the CNS has four repeats (R1, R2, R3 and R4) and two inserts (441 amino acids total), while the shortest isoform has three repeats (R1, R3 and R4) and no insert (352 amino acids total). Tau is also a phosphoprotein with 79 potential Serine (Ser) and Threonine (Thr) phosphorylation sites on the longest tau isoform. Phosphorylation has been reported on approximately 30 of these sites in normal tau proteins. Mechanisms that drive tau lesion formation in the highly prevalent sporadic form of AD are not fully understood, but appear to involve abnormal post-translational modifications (PTMs) that influence tau function, stability, and aggregation propensity.

Product Details

Verified Reactivity	Human
Antibody Type	Monoclonal
Host Species	Mouse
Immunogen	This monoclonal antibody was raised against full-length human tau.
Formulation	Phosphate-buffered solution.
Preparation	The antibody was purified by affinity chromatography.
Concentration	1 mg/ml
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C. Please note the storage condition for this antibody has been changed from -20°C to between 2°C and 8°C. You can also check your vial or your CoA to find the most accurate storage condition for this antibody.
Application	WB - Quality tested IHC-P - Verified

Recommended Usage	Each lot of this antibody is quality control tested by Western blotting . For Western blotting, the suggested use of this reagent is 1.0 - 5.0 µg per ml. For immunohistochemistry on formalin-fixed paraffin-embedded tissue, a concentration range of 1.0 - 10 µg/ml is suggested. It is recommended that the reagent be titrated for optimal performance for each application.
Application Notes	This antibody is effective in immunoblotting (WB), and Immunohistochemistry on formalin-fixed paraffin-embedded tissue (IHC-P)
RRID	AB_2715847 (BioLegend Cat. No. 823702) AB_2564873 (BioLegend Cat. No. 823701)

Antigen Details

Structure	Expected MW: 53 kD, 57 kD, 61 kD
Biology Area	Cell Biology, Neurodegeneration, Neuroscience, Protein Misfolding and Aggregation
Molecular Family	Tau
Gene ID	4137

Related Protocols

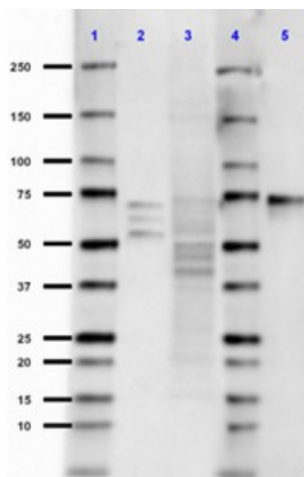
[Western Blotting Protocol](#)

[Immunohistochemistry Protocol for Paraffin-Embedded Sections](#)

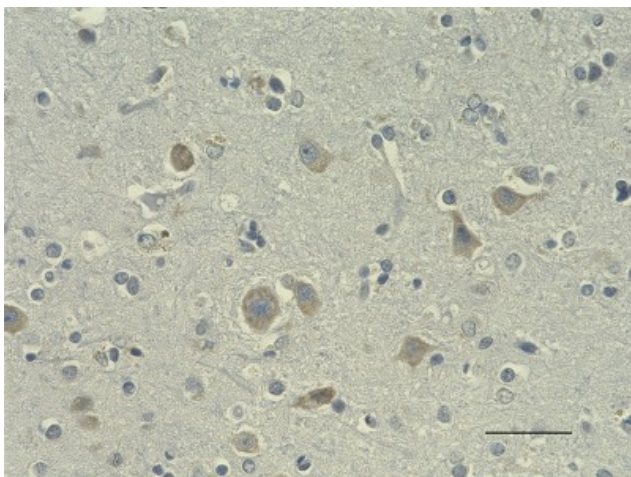
Other Formats

Purified anti-4R Tau

Product Data



Western blot of purified anti-4R Tau antibody (clone 5F9). Lane 1, 4: Molecular weight marker; Lane 2: 2.5 µg of recombinant human Tau ladder protein; Lane 3: 30 µg of human brain lysate; Lane 5: 0.1 µg of 2N4R Tau recombinant protein. The blot was incubated with 5 µg/mL of the primary antibody overnight at 4°C, followed by incubation with HRP labeled goat anti-mouse IgG (Cat. No. 405306). Enhanced chemiluminescence was used as the detection system.



IHC staining of purified anti-4R Tau antibody (clone 5F9) on formalin-fixed paraffin-embedded Alzheimer's disease human tissue. Following antigen retrieval using Sodium Citrate H.I.E.R., the tissue was incubated with 1 $\mu\text{g}/\text{ml}$ of the primary antibody overnight at 4°C. BioLegend's Ultra-Streptavidin (USA) HRP kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective. Scale bar: 50 μm

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