

## Recombinant Human Tau-412 (1N4R) (Previously Covance catalog# PTN-5278)

<b>Catalog# / Size</b>	843101 / 25 µg
<b>Regulatory Status</b>	RUO
<b>Other Names</b>	Microtubule-Associated Protein Tau, Phf-Tau, Paired Helical Filament-Tau, Neurofibrillary Tangle Protein, Microtubule-Associated Protein Tau, Isoform 4, G Protein Beta1/Gamma2 Subunit-Interacting Factor 1
<b>Previously</b>	Covance Catalog# PTN-5278
<b>Description</b>	<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. 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.</p>

### Product Details

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<b>Verified Reactivity</b>	Human
<b>Purity</b>	>90% by SDS-PAGE
<b>Formulation</b>	50 mM Tris-HCl, 300 mM NaCl, 10% Glycerol, 0.5 mM TCEP, pH 8.
<b>Concentration</b>	0.1 mg/mL
<b>Storage &amp; Handling</b>	Unopened vial can be stored between 2°C and 8°C for one month, at -20°C for six months, or at -70°C for one year. For maximum results, quick spin vial prior to opening. The protein can be aliquoted and stored at -20°C to -70°C. <b>Avoid repeated freeze/thaw cycles.</b>
<b>Application</b>	<a href="#">WB - Quality tested</a>
<b>Recommended Usage</b>	The optimal working dilution should be determined for each specific assay condition. • <b>WB:</b> Recommended load amount of 0.2-0.5 µg/lane
<b>Application Notes</b>	This protein has utility in immunoblotting (WB).  Uni Prot ID: P10636-7  WB Expected MW: 60 kD Tau-412 MW: 42.9 kD 8X His-tag Tau-412 MW: 45.2 kD  WB Positive Control: TAU 5 antibody (Catalog No. 806403)

## Antigen Details

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<b>Biology Area</b>	Cell Biology, Neurodegeneration, Neuroscience, Protein Misfolding and Aggregation
<b>Molecular Family</b>	Tau
<b>Gene ID</b>	<a href="#">4137</a>

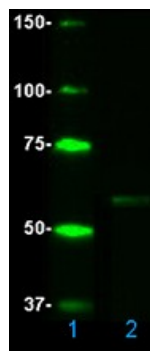
## Related Protocols

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[Western Blotting Protocol](#)

## Product Data

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Western blot showing reactivity of 1N4R TAU protein using TAU5 (Cat. No. 806403) antibody. Lane1: Molecular weight marker; Lane 2: 50 ng 1N4R TAU protein.

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BioLegend Inc., 8999 BioLegend Way, San Diego, CA 92121 [www.biolegend.com](http://www.biolegend.com)  
Toll-Free Phone: 1-877-Bio-Legend (246-5343) Phone: (858) 768-5800 Fax: (877) 455-9587