

## Product datasheet

### Anti-Tau (phospho T181) antibody [EPR22064] $\alpha$ b223192

Recombinant RabMAb

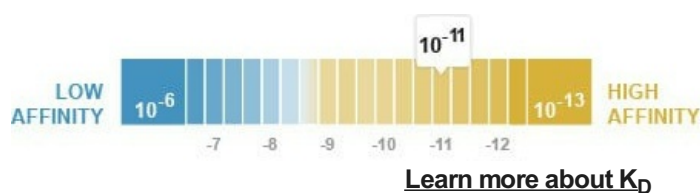
★★★★★ [4 Abreviews](#) [4 Images](#)

#### Overview

<b>Product name</b>	Anti-Tau (phospho T181) antibody [EPR22064]
<b>Description</b>	Rabbit monoclonal [EPR22064] to Tau (phospho T181)
<b>Host species</b>	Rabbit
<b>Specificity</b>	The specificity of this antibody refers to P10636-8.
<b>Tested applications</b>	<b>Suitable for:</b> WB, Dot blot, IP
<b>Species reactivity</b>	<b>Reacts with:</b> Human
<b>Immunogen</b>	Synthetic peptide. This information is proprietary to Abcam and/or its suppliers.
<b>Positive control</b>	WB: Human brain lysate. Dot blot: Tau (phospho T181) peptide. IP: Human brain lysate.
<b>General notes</b>	<p>This product is a recombinant monoclonal antibody, which offers several advantages including:</p> <ul style="list-style-type: none"> <li>- High batch-to-batch consistency and reproducibility</li> <li>- Improved sensitivity and specificity</li> <li>- Long-term security of supply</li> <li>- Animal-free production</li> </ul> <p>For more information <a href="#">see here</a>.</p> <p>Our RabMAb<sup>®</sup> technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to <a href="#">RabMAb<sup>®</sup> patents</a>.</p>

#### Properties

<b>Form</b>	Liquid
<b>Storage instructions</b>	Shipped at 4°C. Store at +4°C short term (1-2 weeks). Upon delivery aliquot. Store at -20°C long term. Avoid freeze / thaw cycle.
<b>Dissociation constant (<math>K_D</math>)</b>	$K_D = 1.96 \times 10^{-11}$ M



<b>Storage buffer</b>	pH: 7.2
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	Preservative: 0.01% Sodium azide
	Constituents: PBS, 40% Glycerol, 0.05% BSA
<b>Purity</b>	Protein A purified
<b>Clonality</b>	Monoclonal
<b>Clone number</b>	EPR22064
<b>Isotype</b>	IgG

## Applications

**The Abpromise guarantee** Our **Abpromise guarantee** covers the use of ab223192 in the following tested applications. The application notes include recommended starting dilutions; optimal dilutions/concentrations should be determined by the end user.

Application	Abreviews	Notes
<b>WB</b>	★★★★★ (2)	1/1000. Detects a band of approximately 60 kDa (predicted molecular weight: 79 kDa).
<b>Dot blot</b>		1/1000.
<b>IP</b>		1/30.

## Target

<b>Function</b>	Promotes microtubule assembly and stability, and might be involved in the establishment and maintenance of neuronal polarity. The C-terminus binds axonal microtubules while the N-terminus binds neural plasma membrane components, suggesting that tau functions as a linker protein between both. Axonal polarity is predetermined by tau localization (in the neuronal cell) in the domain of the cell body defined by the centrosome. The short isoforms allow plasticity of the cytoskeleton whereas the longer isoforms may preferentially play a role in its stabilization.
<b>Tissue specificity</b>	Expressed in neurons. Isoform PNS-tau is expressed in the peripheral nervous system while the others are expressed in the central nervous system.
<b>Involvement in disease</b>	<p>Note=In Alzheimer disease, the neuronal cytoskeleton in the brain is progressively disrupted and replaced by tangles of paired helical filaments (PHF) and straight filaments, mainly composed of hyperphosphorylated forms of TAU (PHF-TAU or AD P-TAU).</p> <p>Defects in MAPT are a cause of frontotemporal dementia (FTD) [MIM:600274]; also called frontotemporal dementia (FTD), pallido-ponto-nigral degeneration (PPND) or historically termed Pick complex. This form of frontotemporal dementia is characterized by presenile dementia with behavioral changes, deterioration of cognitive capacities and loss of memory. In some cases, parkinsonian symptoms are prominent. Neuropathological changes include frontotemporal atrophy often associated with atrophy of the basal ganglia, substantia nigra, amygdala. In most cases, protein tau deposits are found in glial cells and/or neurons.</p> <p>Defects in MAPT are a cause of Pick disease of the brain (PDB) [MIM:172700]. It is a rare form of dementia pathologically defined by severe atrophy, neuronal loss and gliosis. It is characterized by the occurrence of tau-positive inclusions, swollen neurons (Pick cells) and argentophilic neuronal inclusions known as Pick bodies that disproportionately affect the frontal and temporal cortical regions. Clinical features include aphasia, apraxia, confusion, anomia, memory loss and personality deterioration.</p>

Note=Defects in MAPT are a cause of corticobasal degeneration (CBD). It is marked by extrapyramidal signs and apraxia and can be associated with memory loss. Neuropathologic features may overlap Alzheimer disease, progressive supranuclear palsy, and Parkinson disease.

Defects in MAPT are a cause of progressive supranuclear palsy type 1 (PSNP1) [MIM:601104, 260540]; also abbreviated as PSP and also known as Steele-Richardson-Olszewski syndrome. PSNP1 is characterized by akinetic-rigid syndrome, supranuclear gaze palsy, pyramidal tract dysfunction, pseudobulbar signs and cognitive capacities deterioration. Neurofibrillary tangles and gliosis but no amyloid plaques are found in diseased brains. Most cases appear to be sporadic, with a significant association with a common haplotype including the MAPT gene and the flanking regions. Familial cases show an autosomal dominant pattern of transmission with incomplete penetrance; genetic analysis of a few cases showed the occurrence of tau mutations, including a deletion of Asn-613.

**Sequence similarities**

Contains 4 Tau/MAP repeats.

**Developmental stage**

Four-repeat (type II) tau is expressed in an adult-specific manner and is not found in fetal brain, whereas three-repeat (type I) tau is found in both adult and fetal brain.

**Domain**

The tau/MAP repeat binds to tubulin. Type I isoforms contain 3 repeats while type II isoforms contain 4 repeats.

**Post-translational modifications**

Phosphorylation at serine and threonine residues in S-P or T-P motifs by proline-directed protein kinases (PDPK: CDK1, CDK5, GSK-3, MAPK) (only 2-3 sites per protein in interphase, seven-fold increase in mitosis, and in PHF-tau), and at serine residues in K-X-G-S motifs by MAP/microtubule affinity-regulating kinase (MARK) in Alzheimer diseased brains.

Phosphorylation decreases with age. Phosphorylation within tau's repeat domain or in flanking regions seems to reduce tau's interaction with, respectively, microtubules or plasma membrane components. Phosphorylation on Ser-610, Ser-622, Ser-641 and Ser-673 in several isoforms during mitosis.

Polyubiquitinated. Requires functional TRAF6 and may provoke SQSTM1-dependent degradation by the proteasome (By similarity). PHF-tau can be modified by three different forms of polyubiquitination. 'Lys-48'-linked polyubiquitination is the major form, 'Lys-6'-linked and 'Lys-11'-linked polyubiquitination also occur.

Glycation of PHF-tau, but not normal brain tau. Glycation is a non-enzymatic post-translational modification that involves a covalent linkage between a sugar and an amino group of a protein molecule forming ketoamine. Subsequent oxidation, fragmentation and/or cross-linking of ketoamine leads to the production of advanced glycation endproducts (AGES). Glycation may play a role in stabilizing PHF aggregation leading to tangle formation in AD.

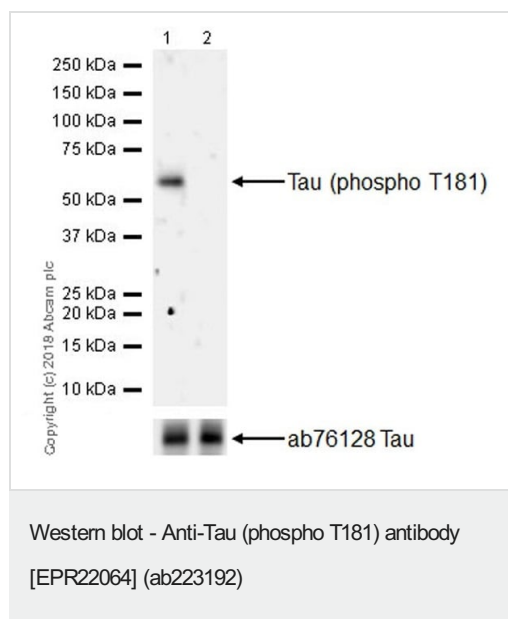
**Cellular localization**

Cytoplasm > cytosol. Cell membrane. Cytoplasm > cytoskeleton. Cell projection > axon. Mostly found in the axons of neurons, in the cytosol and in association with plasma membrane components.

**Form**

There are 9 isoforms produced by alternative splicing.

**Images**



**All lanes :** Anti-Tau (phospho T181) antibody [EPR22064] (ab223192) at 1/1000 dilution

**Lane 1 :** Human brain lysate

**Lane 2 :** Human brain lysate (WB membrane treated with alkaline phosphatase)

Lysates/proteins at 10 µg per lane.

### Secondary

**All lanes :** VeriBlot for IP Detection Reagent (HRP) ([ab131366](#)) at 1/1000 dilution

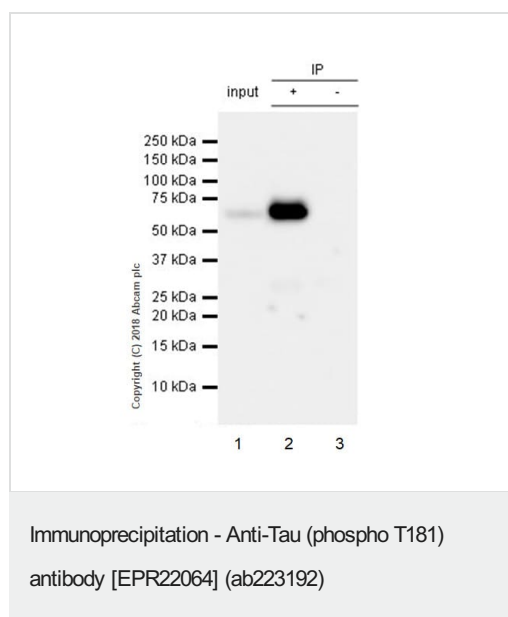
**Predicted band size:** 79 kDa

**Observed band size:** 60 kDa

**Exposure time:** 3 minutes

Blocking and dilution buffer: 5% NFDM/TBST.

WB membrane in Lane 2 was treated with alkaline phosphatase for 1h at 37°C.



Tau (phospho T181) was immunoprecipitated from 0.35 mg of human brain lysate with ab223192 at 1/30 dilution. Western blot was performed from the immunoprecipitate using ab223192 at 1/500 dilution. VeriBlot for IP Detection Reagent (HRP) ([ab131366](#)), was used for detection at 1/1000 dilution.

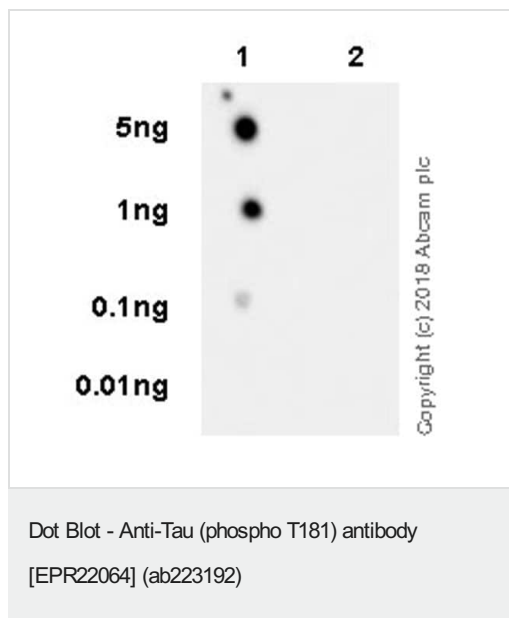
**Lane 1:** Human brain lysate 10 µg (Input).

**Lane 2:** ab223192 IP in Human brain lysate.

**Lane 3:** Rabbit monoclonal IgG ([ab172730](#)) instead of ab223192 in Human brain lysate.

Blocking and dilution buffer and concentration: 5% NFDM/TBST

Exposure time: 3 seconds.



Dot blot analysis of Tau (phospho T181) labeled with ab223192 at 1/1000 dilution.

**Lane 1:** Tau (phospho T181) peptide.

**Lane 2:** Tau non-phospho peptide.

Goat Anti-Rabbit IgG H&L (HRP) (**ab97051**) at 1/100000 dilution was used as secondary antibody.

Blocking and dilution buffer: 5% NFDm/TBST.

Exposure time: 10 seconds.

Why choose a recombinant antibody?

<p><b>Research with confidence</b> Consistent and reproducible results</p>	<p><b>Long-term and scalable supply</b> Recombinant technology</p>
<p><b>Success from the first experiment</b> Confirmed specificity</p>	<p><b>Ethical standards compliant</b> Animal-free production</p>

Anti-Tau (phospho T181) antibody [EPR22064] (ab223192)

**Please note:** All products are "FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC PROCEDURES"

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