abcam

ab174727

# Anti-Tau antibody [EP2456Y] - BSA and Azide free

Recombinant | RabMAb

## Key facts

| | |
|---|---|
| **Isotype** | IgG |
| **Host species** | Rabbit |
| **Storage buffer** | Constituents: PBS |
| **Form** | Liquid |
| **Clonality** | Monoclonal |
| **Immunogen** | The exact immunogen used to generate this antibody is proprietary information. |
| **Carrier free** | Yes |
| **Clone number** | EP2456Y |
| **Purification technique** | Affinity purification Protein A |
| **Specificity** | This antibody clone has been shown to react with Tau 4R and 3R isoforms (doi.org/10.1101/2023.04.13.536711).<br>Our testing suggests that this antibody clone does not cross-reacts with MAP2 or MAP4 |
| **Dissociation constant** | 1.55 x $10^{-11}$ M |
| **Concentration** | 1.011 mg/mL The concentration of this product may be batch-dependent<br>Batch concentration finder → |

## Reactivity data

### WB

**Tested**

| | |
|---|---|
| **Species** | Human, Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## IP

### Tested

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | - |

### Not recommended

| | |
|---|---|
| **Species** | Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## ICC/IF

### Tested

| | |
|---|---|
| **Species** | Mouse, Rat, Human |
| **Dilution info** | - |
| **Notes** | - |

## Flow Cyt (Intra)

### Tested

| | |
|---|---|
| **Species** | Mouse |
| **Dilution info** | - |
| **Notes** | ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

| | |
|---|---|
| **Species** | Rat |
| **Dilution info** | - |

| | |
|---|---|
| **Notes** | ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

| | |
|---|---|
| **Species** | Human |
| **Dilution info** | - |
| **Notes** | ab199376 - Rabbit monoclonal IgG, is suitable for use as an isotype control with this antibody. |

## IHC-P

### Tested

| | |
|---|---|
| **Species** | Human, Mouse, Rat |
| **Dilution info** | - |
| **Notes** | - |

## Target data

See full target information MAPT

| | |
|---|---|
| **Function** | Promotes microtubule assembly and stability, and might be involved in the establishment and maintenance of neuronal polarity (PubMed:21985311). 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 (PubMed:21985311, PubMed:32961270). Axonal polarity is predetermined by TAU/MAPT 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. |

## Storage

| | |
|---|---|
| **Shipped at conditions** | Blue Ice |
| **Appropriate short-term storage conditions** | +4°C |
| **Appropriate long-term storage conditions** | +4°C |
| **Storage information** | Do Not Freeze |

## Notes

ab174727 is the carrier-free version of ab76128.

**Patented technology**
Our RabMAb® technology is a patented hybridoma-based technology for making rabbit monoclonal antibodies. For details on our patents, please refer to RabMAb® patents.

**What are the advantages of a recombinant monoclonal antibody?**
This product is a recombinant monoclonal antibody, which offers several advantages including:

- High batch-to-batch consistency and reproducibility
- Improved sensitivity and specificity
- Long-term security of supply
- Animal-free batch production

For more information, read more on recombinant antibodies.

**Conjugation ready**
Our carrier-free antibodies are typically supplied in a PBS-only formulation, purified and free of BSA, sodium azide and glycerol. This conjugation-ready format is designed for use with fluorochromes, metal isotopes, oligonucleotides, and enzymes, which makes them ideal for antibody labelling, functional and cell-based assays, flow-based assays (e.g. mass cytometry) and Multiplex Imaging applications.

Use our conjugation kits for antibody conjugates that are ready-to-use in as little as 20 minutes with 1 minute hands-on-time and 100% antibody recovery: available for fluorescent dyes, HRP, biotin and gold.

**Compatibility**
This product is compatible with the Maxpar® Antibody Labeling Kit from Fluidigm, without the need for antibody preparation. Maxpar® is a trademark of Fluidigm Canada Inc.

## Supplementary info

This supplementary information is collated from multiple sources and compiled automatically.

| | |
|---|---|
| **Activity summary** | Tau also known as microtubule-associated protein Tau (MAPT) plays an important role in stabilizing microtubules in neuronal cells. Tau is primarily found in the central nervous system but also exists in peripheral neurons. Human Tau protein comes in six isoforms due to alternative splicing with molecular weights ranging from 48 kDa to 67 kDa. This protein predominantly locates in the axons of neurons where it maintains the stability of microtubule tracks necessary for axonal transport. |
| **Biological function summary** | Tau is involved in the assembly and stabilization of microtubules essential for maintaining neuronal structure. It interacts with microtubule-binding domains (MBD) to bind and bundle microtubules facilitating intracellular transport. Tau forms a part of the neuronal cytoskeleton complex working closely with other cytoskeletal proteins to preserve the proper axonal transport and function. Abnormally phosphorylated Tau often termed phospho-Tau disrupts this complex affecting microtubule stability. |
| **Pathways** | Tau has critical involvement in several signaling cascades such as the microtubule-binding and transport pathways. Glycogen synthase kinase 3 beta (GSK3β) and cyclin-dependent kinase 5 (CDK5) frequently phosphorylate Tau controlling its interaction with microtubules. Phosphorylated Tau accumulates leading to the |

| | |
|---|---|
| | formation of neurofibrillary tangles often observed in neurodegenerative conditions. Additionally Tau interacts with GAPDH impacting cellular energy regulation through potential pathway cross-talk involving oxidative stress responses. |
| **Associated diseases and disorders** | Tau is closely associated with Alzheimer's disease and frontotemporal dementia. In Alzheimer's disease hyperphosphorylated Tau aggregates into paired helical filaments forming neurofibrillary tangles while similar aggregates are observed in frontotemporal dementia. In these conditions Tau links to amyloid precursor protein (APP) where misregulated phosphorylation-driven interactions contribute to neurodegeneration. Identifying phospho-Tau and its altered interactions with related proteins aids in understanding and potentially treating these disorders. |

## Product promise

**Tested**

We have tested this species and application combination and it works. It is covered by our product promise.

**Expected**

We have not tested this specific species and application combination in-house, but expect it will work. It is covered by our product promise.

**Predicted**

This species and application combination has not been tested, but we predict it will work based on strong homology. However, this combination is not covered by our product promise.

**Not recommended**

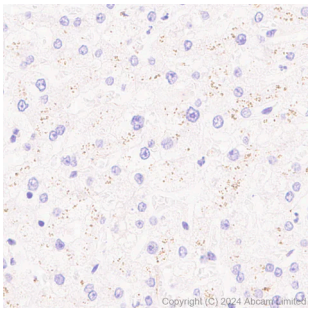
We do not recommend this combination. It is not covered by our product promise.

We are dedicated to supporting your work with high quality reagents and we are here for you every step of the way should you need us.

In the unlikely event of one of our products not working as expected, you are covered by our product promise.

Full details and terms and conditions can be found here:
Terms & Conditions.

## 12 product images



## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

This data was developed using ab76128, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded human liver labeling Tau with ab76128 at 1/2000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

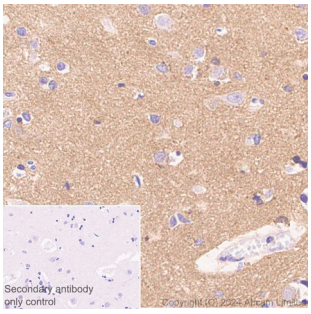
**Negative Control:** no staining on human liver.
The section was incubated with ab76128 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.

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## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

This data was developed using ab76128, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded human cerebrum labeling Tau with ab76128 at 1/2000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

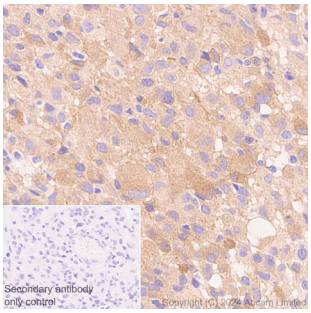
Positive staining on human cerebrum.
The section was incubated with ab76128 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.

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## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

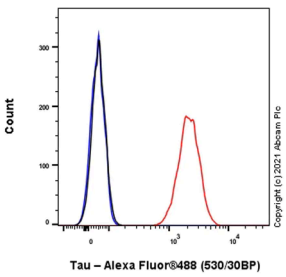
This data was developed using ab76128, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded human astrocytoma labeling Tau with ab76128 at 1/2000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on human astrocytoma.
The section was incubated with ab76128 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

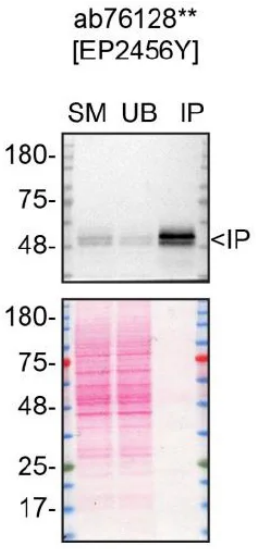
Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.




## Flow Cytometry (Intracellular) - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

Tau Flow Cytometry (Intracellular) staining using rabbit Anti-Tau antibody

This data was developed using ab76128, the same antibody clone in a different buffer formulation. Intracellular Flow Cytometry analysis of SH-SY5Y (Human neuroblastoma epithelial cell) cells labelling Tau with purified ab76128 at 1/500 dilution (1 µg/mL) (Red). Cells were fixed with 4% Paraformaldehyde and permeabilised with 90% Methanol. A Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) secondary antibody was used at 1/2000. Isotype control - Rabbit monoclonal IgG (Black). Unlabelled control - Cell without incubation with primary antibody and secondary antibody (Blue).

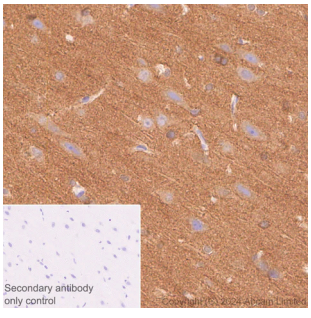



## Immunoprecipitation - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

This data was developed using ab76128, the same antibody clone in a different buffer formulation.

Immunoprecipitation of MAPT in SK-N-FI cells. Lysates were prepared and immunoprecipitation was performed using 2 µg of ab76128 pre-coupled to Protein A beads. Samples were then washed and processed for western blot.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
SK-N-FI cell lysates




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

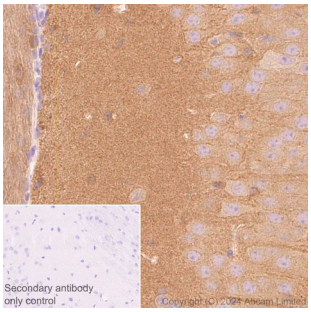
This data was developed using ab76128, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded rat cerebrum labeling Tau with ab76128 at 1/2000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on rat cerebrum.
The section was incubated with ab76128 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.




## Immunohistochemistry (Formalin/PFA-fixed paraffin-embedded sections) - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

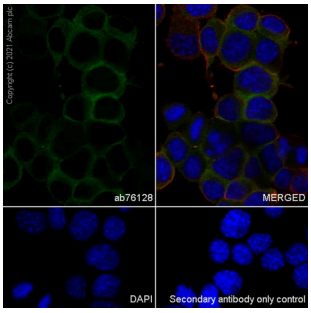
This data was developed using ab76128, the same antibody clone in a different buffer formulation. Immunohistochemical analysis of paraffin-embedded mouse cerebrum labeling Tau with ab76128 at 1/2000 dilution, followed by a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

Positive staining on mouse cerebrum.
The section was incubated with ab76128 for 30 mins at room temperature.
The immunostaining was performed on a Leica Biosystems BOND® RX instrument

Counterstained with Hematoxylin.

Secondary antibody only control: Secondary antibody is a ready to use LeicaDS9800 (Bond™ Polymer Refine Detection).

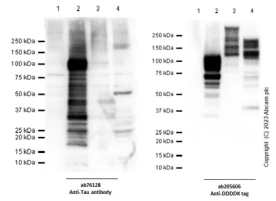
Heat mediated antigen retrieval was performed with Tris-EDTA buffer (pH 9.0, Epitope Retrieval Solution2) for 20 mins.




## Immunocytochemistry/ Immunofluorescence - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

Tau Immunocytochemistry/ Immunofluorescence staining using rabbit Anti-Tau antibody

This data was developed using ab76128, the same antibody clone in a different buffer formulation. Immunocytochemistry analysis of Neuro-2a (Mouse neuroblastoma neuroblast) cells labeling Tau with purified ab76128 at 1/50 dilution (10 µg/mL). Cells were fixed in 4% Paraformaldehyde and permeabilized with 0.1% TritonX-100. Cells were counterstained with ab195889 Anti-alpha Tubulin antibody [DM1A] - Microtubule Marker (Alexa Fluor® 594) 1/200 (2.5 µg/mL). Goat anti rabbit IgG (Alexa Fluor® 488, ab150077) was used as the secondary antibody at 1/1000 (2 µg/mL) dilution. DAPI (blue) was used as nuclear counterstain. PBS instead of the primary antibody was used as the secondary antibody only control.



## Western blot - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

This data was developed using ab76128, the same antibody clone in a different buffer formulation.
Blocking/dilution buffer: 5% NFDM/TBST
All lanes:
Western blot - Anti-Tau antibody [EP2456Y] (ab76128) at 1/1000 dilution

Lane 1:
293T cells transfected with an empty vector containing a flag tag whole cell lysate at 20 µg

Lane 2:
293T cells transfected with a human Tau expression vector containing a flag whole cell lysate at 20 µg

Lane 3:
293T cells transfected with a human MAP2 expression vector containing a flag whole cell lysate at 20 µg

Lane 4:
293T cells transfected with a human MAP4 expression vector containing a flag whole cell lysate at 20 µg

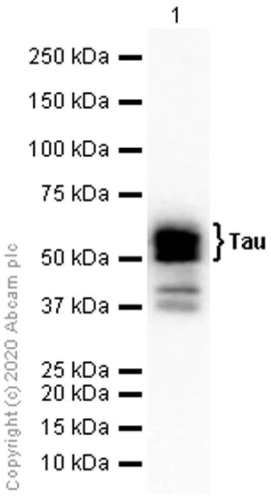
Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 78 kDa

Observed band size: 55-100 kDa

Exposure time: 1s




## Western blot - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

Tau Western blot staining of Human brain lysate using rabbit Anti-Tau antibody

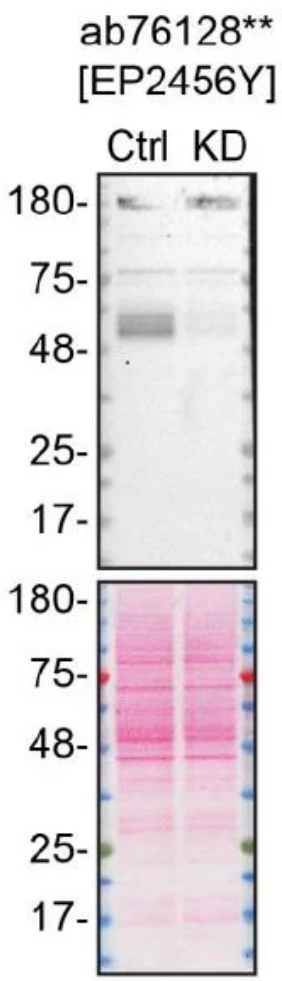
All lanes:
Western blot - Anti-Tau antibody [EP2456Y] (ab76128) at 1/20000 dilution

All lanes:
Human brain lysate at 15 µg

Secondary

All lanes:
Goat Anti-Rabbit IgG (HRP) with minimal cross-reactivity with human IgG at 1/2000 dilution

Predicted band size: 78 kDa




## Western blot - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

Tau Western blot staining using rabbit Anti-Tau antibody

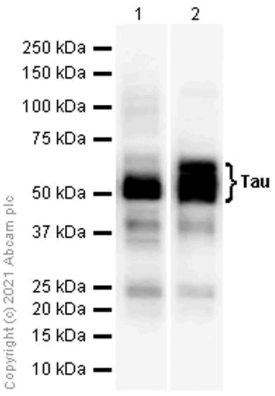
This data was developed using ab76128, the same antibody clone in a different buffer formulation.

ab76128 was shown to react with MAPT in wild-type SK-N-FI cells in Western blot with loss of signal observed in a MAPT siRNA knockdown cell line. Cell lysates from wild-type SK-N-FI transfected with either scrambled siRNA or MAPT siRNA were subjected to SDS-PAGE. Membranes were blocked in 5% milk in TBST for 1 hr before incubation with ab76128 overnight at 4 °C at a 1/1000 dilution. Blots were incubated with secondary antibodies at 0.2 µg/mL before imaging.

This data was provided by YCharOS Inc., an open science company with the mission of characterizing commercially available antibody reagents for all human proteins. Abcam and YCharOS are working together to help address the reproducibility crisis by enabling the life science community to better evaluate commercially available antibodies.
All lanes:
Western blot - Anti-Tau antibody [EP2456Y] (ab76128) at 1/1000 dilution

Lane 1:
Wild-type SK-N-FI transfected with scrambled siRNA control lysate at 30 µg

Lane 2:
SK-N-FI transfected with siRNA specifically targeting MAPT cell lysate at 30 µg




## Western blot - Anti-Tau antibody [EP2456Y] - BSA and Azide free (ab174727)

All lanes:
Western blot - Anti-Tau antibody [EP2456Y] (ab76128) at 1/10000 dilution

Lane 1:
Mouse brain lysate at 15 µg

Lane 2:
Rat brain lysate at 15 µg

Secondary

All lanes:
Western blot - Goat Anti-Rabbit IgG H&L (HRP) (ab97051) at 1/20000 dilution

Predicted band size: 78 kDa

Please note: All products are 'FOR RESEARCH USE ONLY. NOT FOR USE IN DIAGNOSTIC OR THERAPEUTIC PROCEDURES'.