# Anti-Phospho-Tau (T231) Antibody [SC58-08]

# ET1610-31

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| **Product Type:** | Recombinant Rabbit monoclonal IgG, primary antibodies |
| **Species reactivity:** | Human, Mouse, Rat |
| **Applications:** | WB, IHC-P, IP, IF-Tissue, IHC-Fr |
| **Molecular Wt:** | Predicted band size: 46 kDa |
| **Clone number:** | SC58-08 |

**Description:** Tau, also known as MAPT (microtubule-associated protein tau), MAPTL, MTBT1 or TAU, is a 758 amino acid protein that localizes to the cytoplasm, as well as to the cytoskeleton and the cell membrane, and contains four Tau/MAP repeats. Expressed in neuronal tissue and existing as multiple alternatively spliced isoforms, Tau functions to promote microtubule assembly and stability and is thought to be involved in the maintenance of neuronal polarity. Tau may also link microtubules with neural plasma membrane components and, addition to its role in microtubule stability, is also necessary for cytoskeletal plasticity. Tau is highly subject to a variety of post-translational modifications, including phosphorylation on serine and threonine residues, polyubiquitination (and subsequent proteasomal degradation) and glycation of specific Tau isoforms. Defects in the gene encoding Tau are associated with Alzheimers disease, pallido-ponto-nigral degeneration (PPND), corticobasal degeneration (CBD) and progressive supranuclear palsy (PSP).

**Immunogen:** Synthetic phospho-peptide corresponding to residues surrounding Thr231 of human Tau-F (P10636-8).

**Positive control:** Human brain tissue lysate, mouse brain tissue lysate, rat brain tissue lysate, mouse brain tissue, rat brain tissue, human brain tissue, mouse hippocampus tissue.

**Subcellular location:** Secreted, cytoskeleton, cell membrane, cytosol, axon, dendrite.

**Database links:** SwissProt: P10636-8 Human | P10637 Mouse | P19332 Rat

**Recommended Dilutions:**

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| **WB** | 1:2,000 |
| **IHC-P** | 1:1,000 |
| **IF-Tissue** | 1:200 |
| **IHC-Fr** | 1:100 |

**Storage Buffer:** 1*TBS (pH7.4), 0.05% BSA, 40% Glycerol. Preservative: 0.05% Sodium Azide.

**Storage Instruction:** Store at +4℃ after thawing. Aliquot store at -20℃ or -80℃. Avoid repeated freeze / thaw cycles.

**Purity:** Protein A affinity purified.

## Images

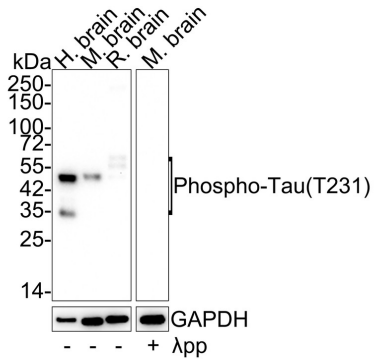


**Fig1:** Western blot analysis of Phospho-Tau (T231) on different lysates with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31) at 1/2,000 dilution.

Lane 1: Human brain tissue lysate
Lane 2: Mouse brain tissue lysate
Lane 3: Rat brain tissue lysate
Lane 4: Mouse brain treated with λpp for 1 hour tissue lysate

Lysates/proteins at 20 µg/Lane.

Predicted band size: 46 kDa
Observed band size: 35-70 kDa

Exposure time: 3 minutes;

4-20% SDS-PAGE gel.

Proteins were transferred to a PVDF membrane and blocked with 5% NFDM/TBST for 1 hour at room temperature. The primary antibody (ET1610-31) at 1/2,000 dilution was used in 5% NFDM/TBST at 4℃ overnight. Goat Anti-Rabbit IgG - HRP Secondary Antibody (HA1001) at 1/50,000 dilution was used for 1 hour at room temperature.

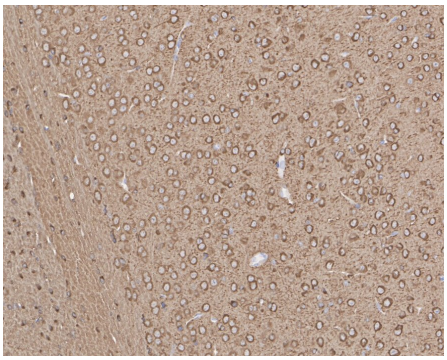

**Fig2:** Immunohistochemical analysis of paraffin-embedded mouse brain tissue with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with dd$H_2O$ and PBS, and then probed with the primary antibody (ET1610-31) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

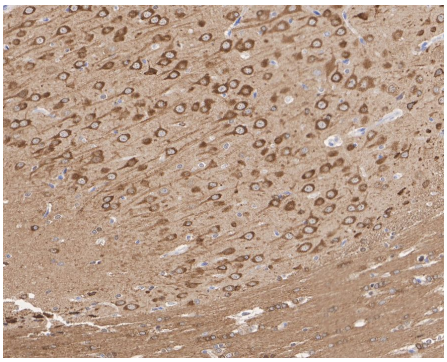

**Fig3:** Immunohistochemical analysis of paraffin-embedded rat brain tissue with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1610-31) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

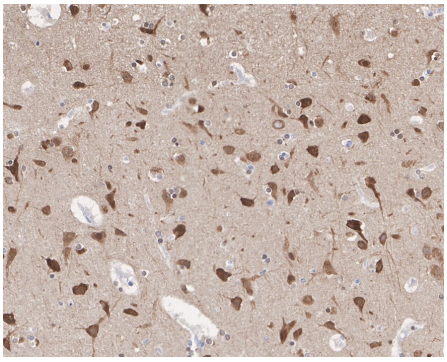

**Fig4:** Immunohistochemical analysis of paraffin-embedded human brain tissue with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31) at 1/1,000 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 1% BSA for 20 minutes at room temperature, washed with $ddH_2O$ and PBS, and then probed with the primary antibody (ET1610-31) at 1/1,000 dilution for 1 hour at room temperature. The detection was performed using an HRP conjugated compact polymer system. DAB was used as the chromogen. Tissues were counterstained with hematoxylin and mounted with DPX.

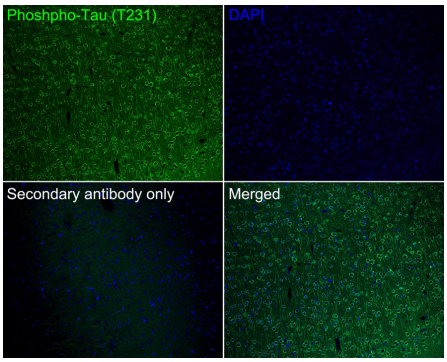


**Fig5:** Immunofluorescence analysis of paraffin-embedded mouse brain tissue labeling Phospho-Tau (T231) with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31) at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS, and then probed with the primary antibody (ET1610-31, green) at 1/200 dilution overnight at 4 ℃, washed with PBS.

Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. Nuclei were counterstained with DAPI (blue).

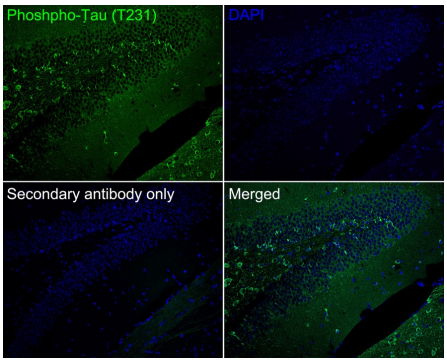


**Fig6:** Immunofluorescence analysis of paraffin-embedded mouse hippocampus tissue labeling Phospho-Tau (T231) with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31) at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS, and then probed with the primary antibody (ET1610-31, green) at 1/200 dilution overnight at 4 ℃, washed with PBS.

Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. Nuclei were counterstained with DAPI (blue).

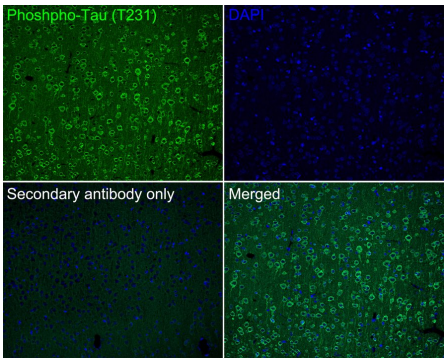


**Fig7:** Immunofluorescence analysis of paraffin-embedded rat brain tissue labeling Phospho-Tau (T231) with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31) at 1/200 dilution.

The section was pre-treated using heat mediated antigen retrieval with Tris-EDTA buffer (pH 9.0) for 20 minutes. The tissues were blocked in 10% negative goat serum for 1 hour at room temperature, washed with PBS, and then probed with the primary antibody (ET1610-31, green) at 1/200 dilution overnight at 4 ℃, washed with PBS.

Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) was used as the secondary antibody at 1/1,000 dilution. Nuclei were counterstained with DAPI (blue).

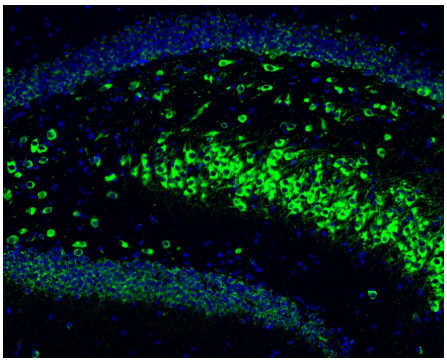

**Fig8:** Immunofluorescence analysis of frozen mouse hippocampus tissue labeling Phospho-Tau (T231) with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31).
The tissues were blocked in 3% BSA for 30 minutes at room temperature, washed with PBS, and then probed with the primary antibody (ET1610-31, green) at 1/100 dilution overnight at 4℃, washed with PBS. Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) was used as the secondary antibody at 1/200 dilution. Nuclei were counterstained with DAPI (blue). Image acquisition was performed with KFBIO KF-FL-400 Scanner.

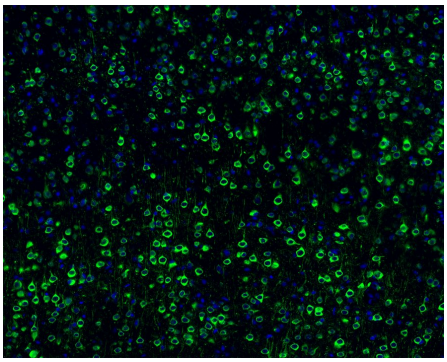

**Fig9:** Immunofluorescence analysis of frozen mouse cerebral cortex tissue labeling Phospho-Tau (T231) with Rabbit anti-Phospho-Tau (T231) antibody (ET1610-31).
The tissues were blocked in 3% BSA for 30 minutes at room temperature, washed with PBS, and then probed with the primary antibody (ET1610-31, green) at 1/100 dilution overnight at 4℃, washed with PBS. Goat Anti-Rabbit IgG H&L (Alexa Fluor® 488) was used as the secondary antibody at 1/200 dilution. Nuclei were counterstained with DAPI (blue). Image acquisition was performed with KFBIO KF-FL-400 Scanner.



## Background References

1. Wang, HY. et al. 2012. Reducing amyloid-related Alzheimer's disease pathogenesis by a small molecule targeting filamin A. J. Neurosci. 32: 9773-9784.
2. Kamnaksh, A. et al. 2012. Neurobehavioral, cellular, and molecular consequences of single and multiple mild blast exposure. Electrophoresis. 33: 3680-3692.