MAP2 Recombinant Antibody [PSH08-73] - Rat IgG1 (Chimeric)

HA601459

Product Type:	Recombinant Chimeric Antibody, primary antibodies
Species reactivity:	Human, Mouse, Rat
Applications:	IHC-Fr, IHC-P, WB, IF-Cell
Molecular Wt:	Predicted band size: 200 kDa
Clone number:	PSH08-73

Description: Microtubule-associated protein 2 is a protein in humans that is encoded by the MAP2 gene. This gene encodes a protein that belongs to the microtubule-associated protein family. The proteins of this family were originally isolated since they copurify with tubulin in polymerization experiments: tubulin in cell extracts can be made to polymerize to produce microtubules (MT) under the influence of heat and the addition of GTP, and the MT can then be collected by centrifugation. When this is done a series of microtubule associated proteins are collected along with the MT and can be detected by SDS-PAGE and other methods. Brain extracts are rich in several of these proteins, MAP2 being one of these. The single MAP2 gene produces four major transcripts producing four proteins, MAP2A, MAP2B, MAP2C and MAP2D. MAP2A and MAP2B are very high molecular weight proteins, with apparent molecular weight on SDS-PAGE about 250 kDa, while MAP2C and MAP2D are much lower molecular weight forms with apparent SDS-PAGE size about 70 kDa. All forms of MAP2 share a common core sequence which includes MT binding domains, 18 amino acid sequences which are found in other MT associated proteins such as MAP Tau and MAP1B. The MAP2 isoforms are thought to be involved in MT assembly, which is an essential step in neuritogenesis. MAP2 serves to stabilize MT growth by crosslinking MT with intermediate filaments and other MTs. MAP2 isoforms are neuron-specific cytoskeletal proteins enriched in dendrites and perikarya, implicating a role in determining and stabilizing neuronal morphology during neuron development. As a result antibodies to MAP2 are widely used to identify neuronal cells and trace dendritic processes in experimental contexts.

Immunogen:	Recombinant protein within human MAP2 aa 1-600.
Positive control:	Mouse brain tissue, rat brain tissue, Mouse brain tissue lysate, Rat brain tissue lysate, mouse primary neuronal cells.
Subcellular location:	Cytoplasm, cytoskeleton, Cell projection, dendrite.
Database links:	SwissProt: P11137 Human | P20357 Mouse | P15146 Rat

Recommended Dilutions:

IHC-Fr	1:500
IHC-P	1:5,000
WB	1:10,000
IF-Cell	1:200

Storage Buffer:	PBS (pH7.4), 0.1% BSA, 40% Glycerol. Preservative: 0.05% Sodium Azide.
Storage Instruction:	Shipped at 4℃. Store at +4℃ short term (1-2 weeks). It is recommended to aliquot into single-use upon delivery. Store at -20℃ long term.
Purity:	Protein A affinity purified.

Images

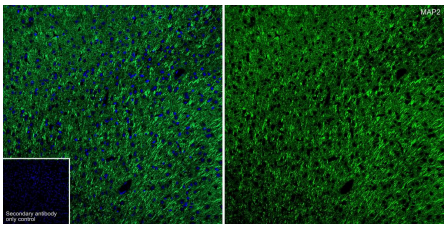

Fig1: Application: IHC-Fr

Species: Mouse

Site: brain

Sample: Frozen section

Antibody concentration: 1/500

Antigen retrieval: Not required

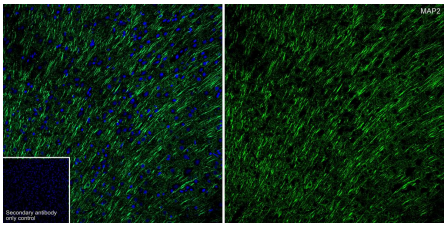

Fig2: Application: IHC-Fr

Species: Rat

Site: brain

Sample: Frozen section

Antibody concentration: 1/500

Antigen retrieval: Not required

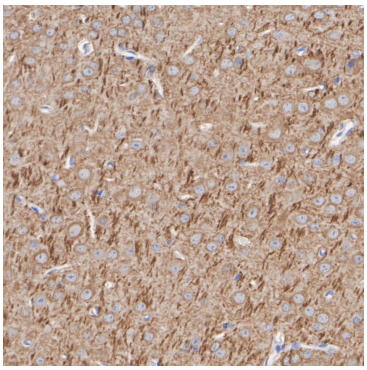

Fig3: Immunohistochemical analysis of paraffin-embedded mouse brain tissue with Rat anti-MAP2 antibody (HA601459) at 1/5,000 dilution.

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 (HA601459) at 1/5,000 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.

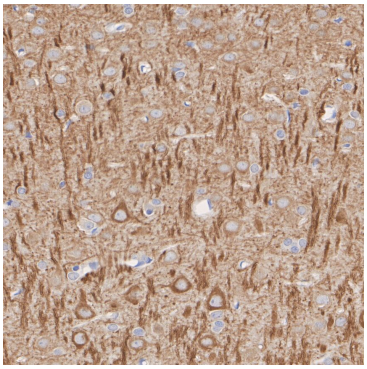

Fig4: Immunohistochemical analysis of paraffin-embedded rat brain tissue with Rat anti-MAP2 antibody (HA601459) at 1/5,000 dilution.

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 (HA601459) at 1/5,000 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.

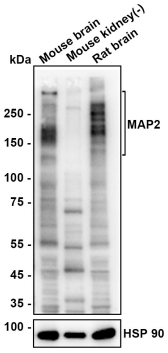

Fig5: Western blot analysis of MAP2 on different lysates with Rat anti-MAP2 antibody (HA601459) at 1/10,000 dilution.

Lane 1: Mouse brain tissue lysate
Lane 2: Mouse kidney tissue lysate (negative)
Lane 3: Rat brain tissue lysate

Lysates/proteins at 20 µg/Lane.

Predicted band size: 200 kDa
Observed band size: 150-300 kDa

Exposure time: 42 seconds; ECL: K1801;

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 (HA601459) at 1/10,000 dilution was used in primary antibody dilution (K1803) at 4℃ overnight. Goat Anti-Rat IgG H&L - HRP Secondary Antibody (HA1023) at 1/50,000 dilution was used for 1 hour at room temperature.

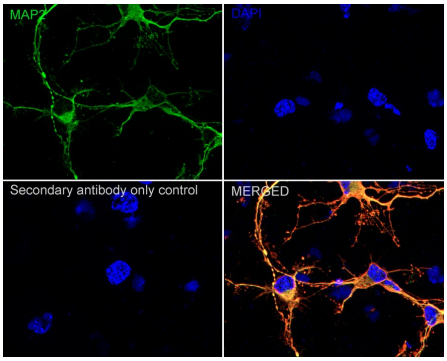

Fig6: Immunocytochemistry analysis of mouse primary neuronal cells labeling MAP2 with Rat anti-MAP2 antibody (HA601459) at 1/200 dilution.

Cells were fixed in 4% paraformaldehyde for 15 minutes at room temperature, permeabilized with 0.1% Triton X-100 in PBS for 15 minutes at room temperature, then blocked with 1% BSA in 10% negative goat serum for 1 hour at room temperature. Cells were then incubated with Rat anti-MAP2 antibody (HA601459) at 1/200 dilution in 1% BSA in PBST overnight at 4 ℃. Goat Anti-Rat IgG H&L (iFluor™ 488, HA1133) was used as the secondary antibody at 1/1,000 dilution. PBS instead of the primary antibody was used as the secondary antibody only control. Nuclear DNA was labelled in blue with DAPI.

Beta tubulin (HA601187, red) was stained at 1/100 dilution overnight at +4℃. Goat Anti-Mouse IgG H&L (iFluor™ 594, HA1126) was used as the secondary antibody at 1/1,000 dilution.

Note: All products are "FOR RESEARCH USE ONLY AND ARE NOT INTENDED FOR DIAGNOSTIC OR THERAPEUTIC USE".

Background References

1. Holden MR et al. MAP2 caps tau fibrils and inhibits aggregation. J Biol Chem. 2023 Jul
2. Grubisha MJ et al. MAP2 is differentially phosphorylated in schizophrenia, altering its function. Mol Psychiatry. 2021 Sep