Anti-MAP2 Antibody [PSH08-73] - BSA and Azide free

HA751238

Product Type:	Recombinant Rabbit monoclonal IgG, primary antibodies
Species reactivity:	Human, Mouse, Rat, Cynomolgus monkey
Applications:	WB, IHC-P, IHC-Fr, 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 primary neural cells, Mouse brain tissue lysate, Rat brain tissue lysate, human brain tissue, mouse brain tissue, rat brain tissue.
Subcellular location:	Cytoplasm, cytoskeleton, Cell projection, dendrite.
Database links:	SwissProt: P11137 Human | P20357 Mouse | P15146 Rat
Recommended Dilutions:	
WB	1:2,000-1:5,000
IHC-P	1:500-1:8,000
IHC-Fr	1:500
IF-Cell	1:500
Storage Buffer:	PBS (pH7.4).
Storage Instruction:	Store at +4℃ after thawing. Aliquot store at -20℃. Avoid repeated freeze / thaw cycles.
Purity:	Protein A affinity purified.

Images

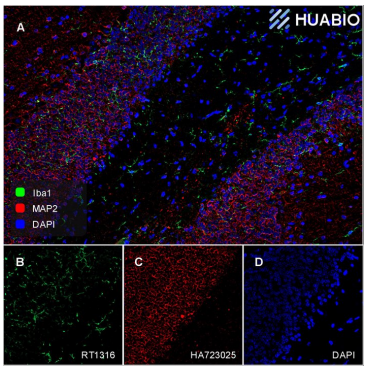

Fig1: Application: IHC-Fr

Species: Mouse

Site: Cerebellum

Sample: Frozen section

Antibody concentration: 1: 500 (MAP2, HA751238, red); 1:1,000 (Iba1, RT1316, green)

Antigen retrieval: Not required

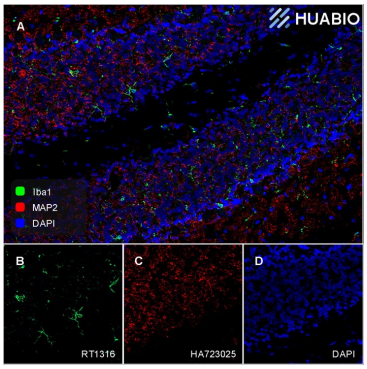

Fig2: Application: IHC-Fr

Species: Rat

Site: Cerebellum

Sample: Frozen section

Antibody concentration: 1: 500 (MAP2, HA751238, red); 1:1,000 (Iba1, RT1316, green)

Antigen retrieval: Not required

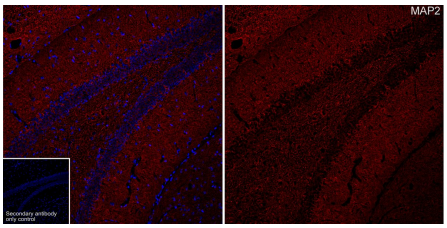

Fig3: Application: IHC-Fr

Species: Mouse

Site: Hippocampus

Sample: Frozen section

Antibody concentration: 1: 500

Antigen retrieval: Not required

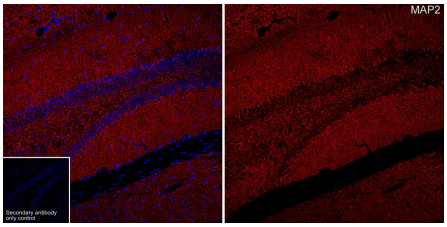

Fig4: Application: IHC-Fr

Species: Mouse

Site: Hippocampus

Sample: Frozen section

Antibody concentration: 1: 500

Antigen retrieval: The section was pre-treated using 1% SDS buffer (in PBS, pH 7.4) for 5 minutes at room temperature.

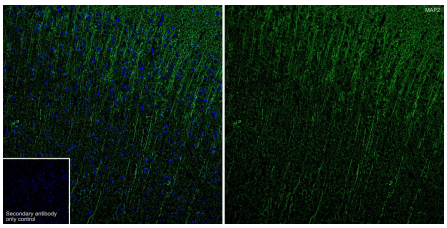

Fig5: Application: IHC-Fr

Species: Rat

Site: Cerebral cortex

Sample: Frozen section

Antibody concentration: 1: 500

Antigen retrieval: Not required

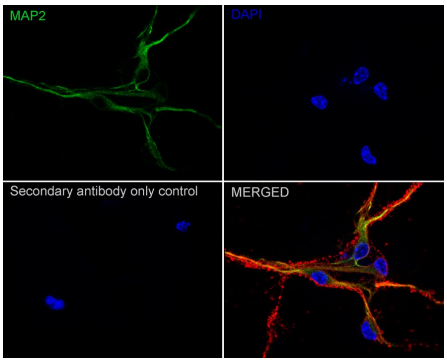

Fig6: Immunocytochemistry analysis of mouse primary neural cells labeling MAP2 with Rabbit anti-MAP2 antibody (HA751238) at 1/500 dilution.

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 Rabbit anti-MAP2 antibody (HA751238) at 1/500 dilution in 1% BSA in PBST overnight at 4 ℃. Goat Anti-Rabbit IgG H&L (iFluor™ 488, HA1121) 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.

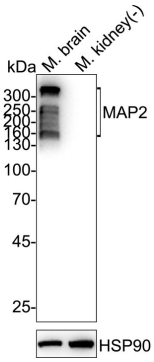

Fig7: Western blot analysis of MAP2 on different lysates with Rabbit anti-MAP2 antibody (HA751238) at 1/5,000 dilution.

Lane 1: Mouse brain tissue lysate (no heat)
Lane 2: Mouse kidney tissue lysate (no heat) (negative)

Notice: no heat means the lysate is not boiled.

Lysates/proteins at 20 µg/Lane.

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

Exposure time: 30 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 (HA751238) at 1/5,000 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.

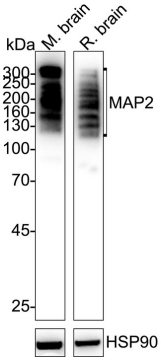

Fig8: Western blot analysis of MAP2 on different lysates with Rabbit anti-MAP2 antibody (HA751238) at 1/2,000 dilution.

Lane 1: Mouse brain tissue lysate (no heat)
Lane 2: Rat brain tissue lysate (no heat)

Notice: no heat means the lysate is not boiled.

Lysates/proteins at 40 µg/Lane.

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

Exposure time: 6 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 (HA751238) 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.

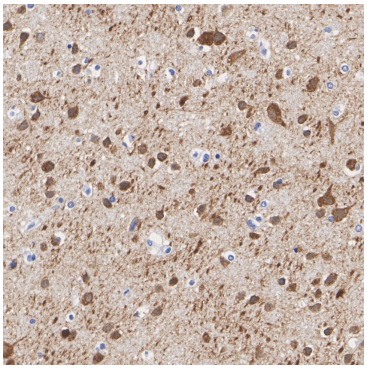

Fig9: Immunohistochemical analysis of paraffin-embedded human brain tissue with Rabbit anti-MAP2 antibody (HA751238) at 1/500 dilution.

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 (HA751238) at 1/500 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.

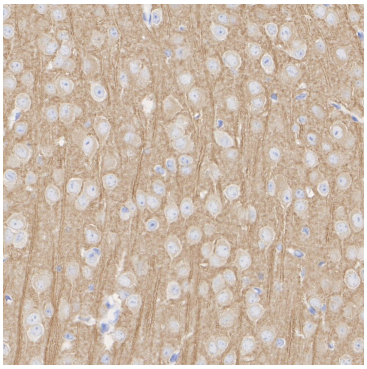

Fig10: Immunohistochemical analysis of paraffin-embedded mouse brain tissue with Rabbit anti-MAP2 antibody (HA751238) at 1/8,000 dilution.

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 (HA751238) at 1/8,000 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.

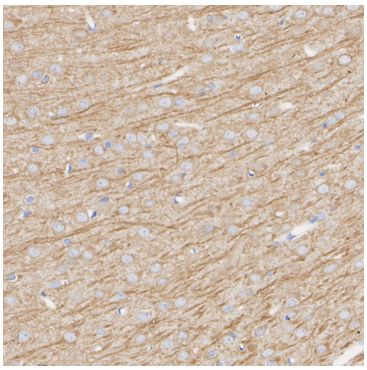

Fig11: Immunohistochemical analysis of paraffin-embedded rat brain tissue with Rabbit anti-MAP2 antibody (HA751238) at 1/8,000 dilution.

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 (HA751238) at 1/8,000 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.

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