Purified anti-MAP2 Antibody (Previously Covance catalog# SMI-52P)

Catalog# / Size	801810 / 25 µL 801801 / 100 µL
Clone	SMI 52
Regulatory Status	RUO
Other Names	Microtubule-associated protein 2, MAP-2
Previously	Covance Catalog# SMI-52P
Isotype	Mouse IgG1, κ
Description	Microtubules are 25nm diameter protein rods found in most kinds of eukaryote cells. They are polymerized from a dimeric subunit made of one α subunit and one β tubulin subunit. Microtubules are associated with a family of proteins called microtubule associated proteins (MAPs), which includes the protein τ (tau) and a group of proteins referred to as MAP1, MAP2, MAP3, MAP4 and MAP5.

Product Details

Verified Reactivity	Mouse, Rat
Antibody Type	Monoclonal
Host Species	Mouse
Immunogen	This monoclonal antibody was raised against Microtubule-Associated Protein 2 (MAP2).
Formulation	Phosphate-buffered solution.
Preparation	The antibody was purified by affinity chromatography.
Concentration	1 mg/mL
Storage & Handling	The antibody solution should be stored undiluted between 2°C and 8°C. Please note the storage condition for this antibody has been changed from -20°C to between 2°C and 8°C. You can also check your vial or your CoA to find the most accurate storage condition for this antibody.
Application	IHC-P - *Quality tested* ICC, ELISA, WB - *Reported in the literature, not verified in house*
Recommended Usage	Each lot of this antibody is quality control tested by formalin-fixed paraffin-embedded immunohistochemical staining. For immunohistochemistry, a concentration range of 0.16 - 1.0 µg/mL is suggested. It is recommended that the reagent be titrated for optimal performance for each application.
Application Notes	Additional reported applications (for relevant formats) include: immunocytochemistry[5,6], ELISA[7], and WB[1,5]. SMI 52 reacts with microtubule-associated protein 2 (MAP2). This antibody reacts with most mammalian species and with frog tissue. SMI 52 recognizes neuronal cell bodies and dendrites in tissue sections and cell cultures. In immunoblots of brain cytoskeletal preparations, SMI 52 reacts with MAP2a and b, and also with a doublet at 68 kD that may represent MAP2c.

Application References

(PubMed link indicates BioLegend citation)

1. Shi Y, *et al*. 2017. *Cell Death Differ.* 24(1):167. **(WB)**
2. Shelton MA, *et al*. 2015. *Biol. Psychiatry*. 78(6):374. **(IHC)** PubMed
3. Wang X, *et al.* 2015. PLoS One. 10: 0145441. **(IHC)** PubMed
4. Kazim SF, *et al*. 2014. *Neuro Dis.* 71:110. **(IHC)**
5. Cardenas-Aguayo MC, *et al.* 2013. *PLOS ONE.* (1):e53596. **(ICC, WB)** PubMed
6. Lo Furno D, *et al*. 2013. *J. Cell. Physiol*. 228:2109. **(ICC)**
7. Gensel J, *et al.* 2009. J Neurosci. 29:3956-3968. **(ELISA)** PubMed

Product Citations

1. McCann MM, *et al.* 2019. Journal of Comparative Neurology. 528(8):1293-1306. PubMed

2. McKinney BC, *et al.* 2019. Neuropsychopharmacology. 44:1055. PubMed
3. de Leeuw VC, *et al.* 2020. Cell Reprogram. 1.125. PubMed
4. Stern AL *et al.* 2018. The Journal of Neuroscience. 38(18):4288-4300 . PubMed
5. DeGiosio R, *et al.* 2019. NPJ Schizophr. 5:13. PubMed
6. Rahman A *et al.* 2018. The Journal of comparative neurology. 527(4):797-817 . PubMed
7. Gensel J, *et al.* 2009. J Neurosci. 29:3956-3968. PubMed
8. Wang X, *et al.* 2015. PLoS One. 10: 0145441. PubMed

RRID

AB_2728526 (BioLegend Cat. No. 801810)
AB_2564643 (BioLegend Cat. No. 801801)

Antigen Details

Structure

MAP2 is made up of two bands of an apparent molecular weight of approximately 280 kD, referred to as MAP2a and MAP2b. A third lower molecular weight form, usually called MAP2c, corresponds to a pair of protein bands running at ~70 kD on SDS-PAGE gels. All these MAP2 forms are derived from a single gene by alternative transcription, and all share a C-terminal sequence which includes either three or four microtubule binding peptide sequences, which are very similar to those found in the related microtubule binding protein τ (tau).

Distribution

Cellular distribution: Plasma membrane, cytoskeleton, nucleus, and cytosol.
Tissue distribution: Predominantly in the nervous system

Function

MAP2 encodes a protein that belongs to the microtubule-associated protein family. The proteins of this family are involved in microtubule assembly. The products of these genes are neuron-specific cytoskeletal proteins that are enriched in dendrites, which implicate a role in determining and stabilizing dentritic shape during neuron development.

Interaction

MAP2 interacts with microtubules. It has also been reported to interact with KNDC1 via KIND2.

Ligand/Receptor

MAP2 isoforms are expressed in neuronal cells and specifically in the perikarya and dendrites of these cells. Antibodies to MAP2 are therefore excellent markers on neuronal cells, their perikarya and neuronal dendrites. In contrast τ (tau) is found predominantly in neuronal axons.

Cell Type

Neural Stem Cells

Biology Area

Cell Biology, Neuroscience, Neuroscience Cell Markers, Stem Cells

Molecular Family

Microtubules

Antigen References

1. Zhou Y, *et al*. 2015, *Neuro Oncol.* 17(12):1578.
2. Loeser H, *et al*. 2015, *Am J Nephrol.* 41(3):191.

Gene ID

17756

25595

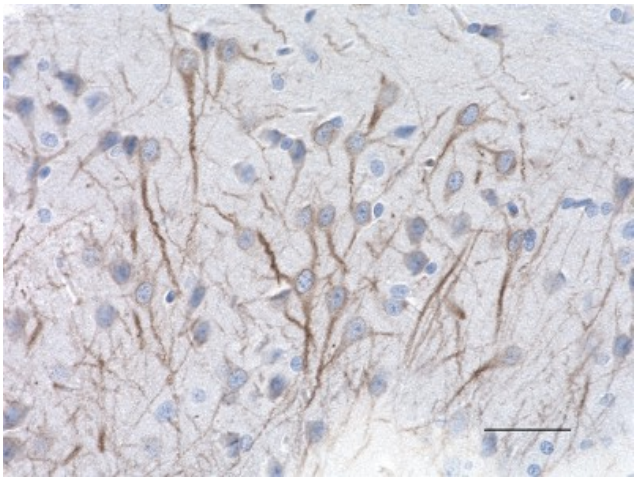
Related Protocols

Immunohistochemistry Protocol for Paraffin-Embedded Sections

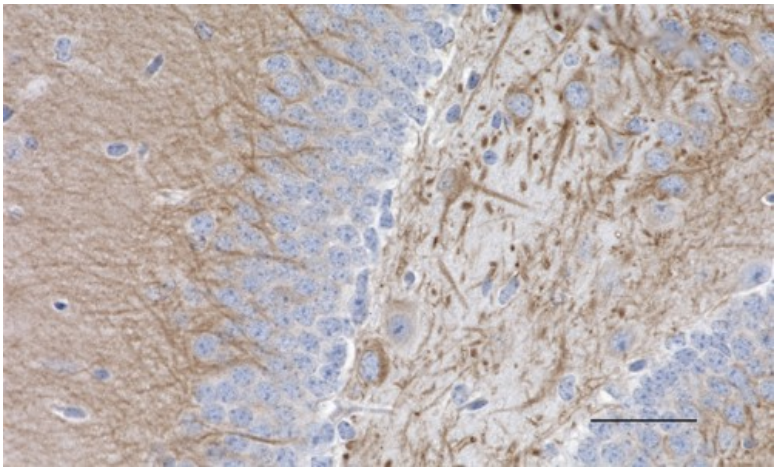
Other Formats

Purified anti-MAP2, Alexa Fluor® 594 anti-MAP2, Alexa Fluor® 488 anti-MAP2, Alexa Fluor® 647 anti-MAP2

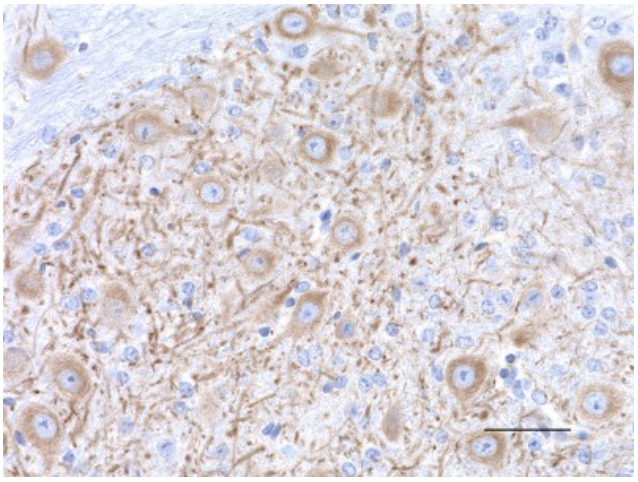
Product Data



IHC staining of purified anti-MAP2 antibody (clone SMI 52) on formalin-fixed paraffin-embedded mouse brain tissue. Following antigen retrieval using Sodium Citrate H.I.E.R., the tissue was incubated with 0.16 µg/mL of the primary antibody for 60 minutes at room temperature. BioLegend's Ultra-Streptavidin (USA) HRP Detection Kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective. Scale bar: 50 µm



IHC staining of purified anti-MAP2 antibody (clone SMI 52) on formalin-fixed paraffin-embedded rat brain tissue. Following antigen retrieval using Sodium Citrate H.I.E.R., the tissue was incubated with 0.16 µg/mL of the primary antibody for 60 minutes at room temperature. BioLegend's Ultra-Streptavidin (USA) HRP Detection Kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective. Scale bar: 50 µm



IHC staining of purified anti-MAP2 antibody (clone SMI 52) on formalin-fixed paraffin-embedded rat brain tissue. Following antigen retrieval using Sodium Citrate H.I.E.R., the tissue was incubated with 0.16 µg/mL of the primary antibody for 60 minutes at room temperature. BioLegend's Ultra-Streptavidin (USA) HRP Detection Kit (Multi-Species, DAB, Cat. No. 929901) was used for detection followed by hematoxylin counterstaining, according to the protocol provided. The image was captured with a 40X objective. Scale bar: 50 µm

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