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MAP2

Cat.No. 188 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°C until use. Antibodies should be stored at +4°C when still lyophilized. Do not freeze! For detailed information, see back of the data sheet.
Applications	**WB**: 1 : 1000 (AP staining) (see remarks) **IP**: not tested yet **ICC**: 1 : 1000 **IHC**: 1 : 500 (see remarks) **IHC-P**: 1 : 250 up to 1 : 500
Immunogen	Recombinant protein corresponding to residues near the amino terminus of human MAP2 (UniProt Id: P11137-4)
Reactivity	Reacts with: human (P11137), rat (P15146), mouse (P20357), chicken. Other species not tested yet.
Specificity	Specific for MAP2; recognizes all four isoforms.
Matching control	188-0P
Remarks	**WB**: Due to the large size of this protein, we recommend NuPAGE 3-8% Tris-Acetate gels for SDS-PAGE. **IHC**: Antigen retrieval with citrate buffer pH 6 is tolerated.

TO BE USED IN VITRO / FOR RESEARCH ONLY
NOT TOXIC, NOT HAZARDOUS, NOT INFECTIOUS, NOT CONTAGIOUS

Background

There are two major classes of heat-stable microtubule-associated proteins (MAPs): MAP2 and tau (MAPT). Both bind microtubules and regulate their polymerization and stability—a critical process for maintaining cellular architecture and dynamics (1).

MAP2 exists in four main isoforms—MAP2A, MAP2B, MAP2C, and MAP2D—via alternative splicing. The high molecular weight isoforms MAP2A/B (~250 kDa) and lower molecular weight isoforms MAP2C/D (~70 kDa) all share a conserved microtubule-binding core domain, important for dendritic stabilization and neuritogenesis (2).

Since microtubule dynamics are central to cell division, migration, and morphology, aberrations in MAP2 and tau expression have been implicated in several types of cancer.

Consequently, MAP2 expression has diagnostic and prognostic relevance in neuro-oncology. MAP2 immunoreactivity helps distinguish glial neoplasms in neuropathology, and its expression tends to vary according to tumor grade (3). While classic low-grade gliomas often show robust MAP2 staining, higher-grade tumors may exhibit less-specific and more heterogeneous patterns. Moreover, in melanoma, reduced MAP2 expression correlates with increased tumor aggressiveness, underscoring its potential role as a tumor suppressive marker (4).

Selected References for 188 002

CD8+ T-Lymphocyte-Driven Limbic Encephalitis Results in Temporal Lobe Epilepsy.
Pitsch J, van Loo KMJ, Gallus M, Dik A, Kamalizade D, Baumgart AK, Gnatkovsky V, Müller JA, Opitz T, Hicking G, Naik VN, et al.
Annals of neurology (2021) 894: 666-685. . **IHC-P; tested species: mouse**

The active zone protein family ELKS supports Ca2+ influx at nerve terminals of inhibitory hippocampal neurons.
Liu C, Bickford LS, Held RG, Nyitrai H, Südhof TC, Kaeser PS
The Journal of neuroscience : the official journal of the Society for Neuroscience (2014) 3437: 12289-303. . **ICC**

Region-specific expression of vesicular glutamate and GABA transporters under various ischaemic conditions in mouse forebrain and retina.
Michalski D, Härtig W, Krügel K, Edwards RH, Böddener M, Böhme L, Pannicke T, Reichenbach A, Grosche A
Neuroscience (2013) 231: 328-44. . **IHC**

Dilated cardiomyopathy-associated RNA-binding motif protein 20 regulates long pre-mRNAs in neurons.
Di Bartolomei G, Ortiz R, Schreiner D, Falkner S, Creemers EEJM, Scheiffele P
eLife (2026) 14: . . **IHC; tested species: mouse**

Inactive ryanodine receptors sustain lysosomal availability for autophagy by promoting ER-lysosomal contact site formation.
Vervliet T, Loncke J, Sever M, Ahuja K, Van den Haute C, Luyten T, Stutzmann GE, Verfaillie C, Tomašič T, Bultynck G
Nature communications (2026) 171: 1293. . **ICC; tested species: human**

Stretch triggers microtubule stabilization and MARCKS-dependent membrane incorporation in the shaft of embryonic axons.
Sousa SC, Aroso M, Bessa R, Veríssimo E, Ferreira da Silva T, Lopes CDF, Brites P, Vieira J, Vieira CP, Aguiar PC, Sousa MM, et al.
Current biology : CB (2024) 3419: 4577-4588.e8. . **ICC; tested species: mouse**

Inhibition of 7α,26-dihydroxycholesterol biosynthesis promotes midbrain dopaminergic neuron development.
Hennegan J, Bryant AH, Griffiths L, Trigano M, Bartley OJM, Bartlett JJ, Minahan C, Abreu de Oliveira WA, Yutuc E, Ntikas S, Bartsocas CS, et al.
iScience (2024) 271: 108670. . **ICC; tested species: human**

Access the online factsheet including applicable protocols at https://sysy.com/product/188002 or scan the QR-code.

FAQ - How should I store my antibody?

Shipping Conditions

- All SYSY antibodies and control proteins/peptides are shipped lyophilized (vacuum freeze-dried). In this form, they remain stable without loss of quality at ambient temperatures for several weeks.

Storage of Sealed Vials after Delivery

- **Unlabeled** and **biotin-labeled antibodies** and **control proteins** should be stored at **4°C** before reconstitution. **Do not freeze lyophilized antibodies**. Temperatures below 0°C may impair performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long-term storage of lyophilized fluorophore-conjugates may cause aggregation.
- **Control peptides** should be stored at -20°C before reconstitution.

Long Term Storage after Reconstitution (General Considerations)

- **Do not use frost-free ("no-frost") freezers.** These units periodically warm to remove ice buildup, causing freeze–thaw cycles that can damage antibodies.
- Store vials in areas with minimal temperature fluctuation - preferably toward the back of the freezer, not on the door.
- Aliquot reconstituted antibodies and store at –20°C to –80°C.
- Avoid very small aliquots (<20 µL), as evaporation and adsorption to tube surfaces can reduce antibody concentration and activity.
- Use the smallest practical storage vial to minimize surface area.
- Adding glycerol to a final concentration of 50% prevents freezing at -20°C, allowing storage in liquid form and effectively avoiding freeze–thaw cycles.

Product Specific Hints for Storage

Control proteins / peptides

- Store at -20°C to -80°C

Monoclonal Antibodies

- **Ascites and hybridoma supernatant:** Store at -20°C to -80°C
  Prolonged storage at 4°C is not recommended, as proteases present in ascites may degrade antibodies.
- **Purified IgG:** Store at -20°C to -80°C
  Adding a carrier protein (e.g., BSA) enhances long-term stability.
  Many SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Polyclonal Antibodies

- **Crude antisera:** Can be stored at 4°C with antimicrobials added, but -20°C to -80°C is preferred
- **Affinity-purified antibodies:** Less stable than antisera; store at -20°C to -80°C
  Adding a carrier protein such as BSA improves long-term stability.
  Most SYSY antibodies already contain carrier proteins - refer to the respective datasheet for details.

Fluorescence-labeled Antibodies

- Store as a liquid with 1:1 (v/v) glycerol at -20°C, and protect from light exposure

Avoid repeated freeze-thaw cycles for all antibodies!

FAQ - How should I reconstitute my antibody?

Reconstitution

- All purified SYSY antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the volume of deionized water specified in the corresponding datasheet. If a larger final volume is desired, first add the recommended amount of water, then adjust with PBS and, if needed, add a stabilizing carrier protein (e.g., BSA) to a final concentration of 2%. Some SYSY antibodies already contain albumin; please take this into account before adding additional carrier protein.

For complete reconstitution, carefully remove the vial cap. After adding water, briefly vortex the solution. To collect the liquid at the bottom of the vial, place the vial inside a 50 ml centrifuge tube padded with paper and centrifuge briefly.

- If desired, small amounts of azide or thimerosal may be added to prevent microbial growth. This is particularly recommended when storing an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add glycerol 1:1 (v/v) to achieve a final concentration of 50%. This prevents freezing at –20°C and keeps the antibody in liquid form, effectively avoiding freeze–thaw cycles.
- Glycerol may also be added to unlabeled primary antibodies as a general measure to prevent freeze–thaw damage.
- For further guidance, please refer to our **storage tips** and recommendations for reconstituted antibodies, control peptides, and control proteins.