SYSY Antibodies

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β-Actin

Cat.No. 251 011; Monoclonal mouse antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 µl H_2O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°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 up to 1 : 10000 **IP**: yes **ICC**: 1 : 500 (see remarks) **IHC**: not tested yet **IHC-P (FFPE)**: not tested yet
Clone	130B4
Subtype	IgG1 (κ light chain)
Immunogen	Synthetic peptide corresponding to AA 2 to 16 from mouse β-Actin (UniProt Id: P60710)
Reactivity	Reacts with: rat (P60711), mouse (P60710), zebrafish, human (P60709), Drosophila melanogaster. Other species not tested yet.
Specificity	May cross-react to α- and γ-actin due to sequence homology.
Remarks	**ICC**: The following fixatives are possible: 4% formaldehyde/PFA, methanol.

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

Background

The two major cytoskeletal proteins involved in cell motility are myosin and **actin**. Monomeric actin is a globular protein that is expressed in all eukaryotic cells. Actin is the major subunit of microfilaments, a major component of the cytoskeleton, and of thin filaments, part of the contractile apparatus in muscle cells.
Actin is involved in many cellular processes including cell motility, maintenance of cell shape, and organelle trafficking.
Three main groups of actin have been identified. α-actins are found in muscle tissues whereas β- and γ-actins co-exist in most cell types as components of the cytoskeleton.

Selected References for 251 011

TBC1D24 regulates axonal outgrowth and membrane trafficking at the growth cone in rodent and human neurons.
Aprile D, Fruscione F, Baldassari S, Fadda M, Ferrante D, Falace A, Buhler E, Sartorelli J, Represa A, Baldelli P, Benfenati F, et al.
Cell death and differentiation (2019) : . . **WB; tested species: rat**

Activity-dependent localization and dynamics of STIM1 and STIM2 at ER-PM contacts in hippocampal neurons.
Chhikara A, Maciąg F, Sorusch N, Heine M
Cell reports (2025) 4410: 116290. . **WB; tested species: mouse**

Maintenance of a central high frequency synapse in the absence of synaptic activity.
Lessle S, Ebbers L, Dörflinger Y, Hoppe S, Kaiser M, Nothwang HG, Körber C
Frontiers in cellular neuroscience (2024) 18: 1404206. . **WB; tested species: human**

Simple and Highly Efficient Detection of PSD95 Using a Nanobody and Its Recombinant Heavy-Chain Antibody Derivatives.
Kilisch M, Gere-Becker M, Wüstefeld L, Bonnas C, Crauel A, Mechmershausen M, Martens H, Götzke H, Opazo F, Frey S
International journal of molecular sciences (2023) 248: . . **WB; tested species: mouse**

Depressed glutamate transporter 1 expression in a mouse model of Dravet syndrome.
Hameed MQ, Hui B, Lin R, MacMullin PC, Pascual-Leone A, Vermudez SAD, Rotenberg A
Annals of clinical and translational neurology (2023) 109: 1695-1699. . **WB; tested species: mouse**

PLA2G4E, a candidate gene for resilience in Alzheimer´s disease and a new target for dementia treatment.
Pérez-González M, Mendioroz M, Badesso S, Sucunza D, Roldan M, Espelosín M, Ursua S, Luján R, Cuadrado-Tejedor M, Garcia-Osta A
Progress in neurobiology (2020) 191: 101818. . **WB; tested species: mouse**

Auxiliary α2δ1 and α2δ3 Subunits of Calcium Channels Drive Excitatory and Inhibitory Neuronal Network Development.
Bikbaev A, Ciuraszkiewicz-Wojciech A, Heck J, Klatt O, Freund R, Mitlöhner J, Enrile Lacalle S, Sun M, Repetto D, Frischknecht R, Ablinger C, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) 4025: 4824-4841. . **WB; tested species: mouse**

Selected General References

Sorting of beta-actin mRNA and protein to neurites and growth cones in culture.
Bassell GJ et al. J. Neurosci. (1998) PubMed:9412505

Regulation of the human beta-actin promoter by upstream and intron domains.
Ng SY et al. Nucleic Acids Res. (1989) PubMed:2915924

The nucleotide sequence of the rat cytoplasmic beta-actin gene.
Nudel U et al. Nucleic Acids Res. (1983) PubMed:6300777

The genes coding for the cardiac muscle actin, the skeletal muscle actin and the cytoplasmic beta-actin are located on three different mouse chromosomes.
Czosnek H et al. EMBO J. (1983) PubMed:6641707

Access the online factsheet including applicable protocols at https://sysy.com/product/251011 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.