SYSY Antibodies

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β-Actin

Cat.No. 251 003; Polyclonal rabbit antibody, 100 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg specific antibody, lyophilized. Affinity purified with the immunogen. 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 : 5000 (AP staining) **IP**: yes **ICC**: 1 : 200 up to 1 : 500 (see remarks) **IHC**: not tested yet **IHC-P (FFPE)**: not tested yet
Immunogen	Synthetic peptide corresponding to AA 2 to 16 from mouse β-Actin (UniProt Id: P60710)
Reactivity	Reacts with: rat (P60711), mouse (P60710), chicken, zebrafish. 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: 2% formaldehyde/PFA, methanol. The following fixatives are not advised: 4% formaldehyde/PFA.

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 251 003

The receptor for advanced glycation end products and its ligands' expression in OVE26 diabetic sciatic nerve during the development of length-dependent neuropathy.
Zglejc-Waszak K, Schmidt AM, Juranek JK
Neuropathology : official journal of the Japanese Society of Neuropathology (2022) : . . **IHC; tested species: mouse**

The α-subunit of the trimeric GTPase Go2 regulates axonal growth.
Baron J, Blex C, Rohrbeck A, Rachakonda SK, Birnbaumer L, Ahnert-Hilger G, Brunk I
Journal of neurochemistry (2013) 1246: 782-94. . **WB**

Membrane mechanics dictate axonal pearls-on-a-string morphology and function.
Griswold JM, Bonilla-Quintana M, Pepper R, Lee CT, Raychaudhuri S, Ma S, Gan Q, Syed S, Zhu C, Bell M, Suga M, et al.
Nature neuroscience (2024) : . . **WB; tested species: mouse**

Mitochondrial dynamics and sex-specific responses in the developing rat hippocampus: Effect of perinatal asphyxia and mesenchymal stem cell Secretome treatment.
Zamorano-Cataldo M, Vega-Vásquez I, García-Navarrete C, Toledo J, Bustamante D, Ezquer F, Urra FA, Farfán-Troncoso N, Herrera-Marschitz M, Morales P
Biochimica et biophysica acta. Molecular cell research (2024) 18718: 119851. . **WB; tested species: rat**

S-SCAM is essential for synapse formation.
Wittenmayer N, Petkova-Tuffy A, Borgmeyer M, Lee C, Becker J, Böning A, Kügler S, Rhee J, Viotti JS, Dresbach T
Frontiers in cellular neuroscience (2023) 17: 1182493. . **WB; tested species: rat**

Deletion of hippocampal Glucocorticoid receptors unveils sex-biased microRNA expression and neuronal morphology alterations in mice.
Tejos-Bravo M, Oakley RH, Whirledge SD, Corrales WA, Silva JP, García-Rojo G, Toledo J, Sanchez W, Román-Albasini L, Aliaga E, Aguayo F, et al.
Neurobiology of stress (2021) 14: 100306. . **WB; tested species: mouse**

The Synaptic Vesicle Priming Protein CAPS-1 Shapes the Adaptation of Sensory Evoked Responses in Mouse Visual Cortex.
Nestvogel DB, Merino RM, Leon-Pinzon C, Schottdorf M, Lee C, Imig C, Brose N, Rhee JS
Cell reports (2020) 3010: 3261-3269.e4. . **WB; tested species: mouse**

A nanobody-based fluorescent reporter reveals human α-synuclein in the cell cytosol.
Gerdes C, Waal N, Offner T, Fornasiero EF, Wender N, Verbarg H, Manzini I, Trenkwalder C, Mollenhauer B, Strohäker T, Zweckstetter M, et al.
Nature communications (2020) 111: 2729. . **WB; tested species: rat**

Altered Glutaminase 1 Activity During Neurulation and Its Potential Implications in Neural Tube Defects.
Benavides-Rivas C, Tovar LM, Zúñiga N, Pinto-Borguero I, Retamal C, Yévenes GE, Moraga-Cid G, Fuentealba J, Guzmán L, Coddou C, Bascuñán-Godoy L, et al.
Frontiers in pharmacology (2020) 11: 900. . **WB; tested species: frog**

SNAREs define targeting specificity of trafficking vesicles by combinatorial interaction with tethering factors.
Koike S, Jahn R
Nature communications (2019) 101: 1608. . **WB; tested species: human**

Access the online factsheet including applicable protocols at https://sysy.com/product/251003 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.