

## 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 <b>reconstitution</b> add 100 µl H <sub>2</sub> O 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	<b>WB:</b> 1 : 1000 up to 1 : 5000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 200 up to 1 : 500 (see remarks) <b>IHC:</b> not tested yet <b>IHC-P:</b> 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	<b>ICC:</b> 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.

Zglejcz-Waszk 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, Urrea 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, Whirlledge 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, Schotttdorf 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 our antibodies and control proteins / peptides are shipped lyophilized (vacuum freeze-dried) and are stable in this form 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. **They must not be stored in the freezer when still lyophilized!** Temperatures below zero may cause loss of performance.
- **Fluorescence-labeled antibodies** should be reconstituted immediately upon receipt. Long term storage (several months) may lead to aggregation.
- **Control peptides** should be kept at -20°C before reconstitution.

### Long Term Storage after Reconstitution (General Considerations)

- The storage freezer must not be of the frost-free variety ("no-frost freezer"). This cycle between freezing and thawing (to reduce frost-build-up), which is exactly what should be avoided. For the same reason, antibody vials should be placed in an area of the freezer that has minimal temperature fluctuations, for instance towards the back rather than on a door shelf.
- Aliquot the antibody and store frozen (-20°C to -80°C). Avoid very small aliquots (below 20 µl) and use the smallest storage vial or tube possible. The smaller the aliquot, the more the stock concentration is affected by evaporation and adsorption of the antibody to the surface of the storage vial or tube. Adsorption of the antibody to the surface leads to a substantial loss of activity.
- The addition of glycerol to a final concentration of 50% lowers the freezing point of your stock and keeps your antibody at -20°C in liquid state. This efficiently avoids freeze and thaw cycles.

### Product Specific Hints for Storage

#### Control proteins / peptides

- Store at -20°C to -80°C.

#### Monoclonal Antibodies

- **Ascites** and **hybridoma supernatant** should be stored at -20°C up to -80°C. **Prolonged storage at 4°C is not recommended!** Unlike serum, ascites may contain proteases that will degrade the antibodies.
- **Purified IgG** should be stored at -20°C up to -80°C. Adding a carrier protein like BSA will increase long term stability. Many of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Polyclonal Antibodies

- **Crude antisera:** With anti-microbials added, they may be stored at 4°C. However, frozen storage (-20°C up to -80°C) is preferable.
- **Affinity purified antibodies:** Less robust than antisera. Storage at -20°C up to -80°C is recommended. Adding a carrier protein like BSA will increase long term stability. Most of our antibodies already contain carrier proteins. Please refer to the data-sheet for detailed information.

#### Fluorescence-labeled Antibodies

- Store as a liquid with 1 : 1 (v/v) glycerol at -20°C. Protect these antibodies from light exposure.

## Avoid repeated freeze-thaw cycles for all antibodies!

## FAQ - How should I reconstitute my antibody?

### Reconstitution

- All our purified antibodies are lyophilized from PBS. To reconstitute the antibody in PBS, add the amount of deionized water given in the respective datasheet. If higher volumes are preferred, add water as mentioned above and then the desired amount of PBS and a stabilizing carrier protein (e.g. BSA) to a final concentration of 2%. Some of our antibodies already contain albumin. Take this into account when adding more carrier protein. For complete reconstitution, carefully remove the lid. After adding water, briefly vortex the solution. You can spin down the liquid by placing the vial into a 50 ml centrifugation tube filled with paper.
- If desired, add small amounts of azide or thimerosal to prevent microbial growth. This is especially recommended if you want to keep an aliquot at 4°C.
- After reconstitution of fluorescence-labeled antibodies, add 1 : 1 (v/v) glycerol to a final concentration of 50%. This lowers the freezing point of your stock and keeps your antibody in liquid state at -20°C.
- Glycerol may also be added to unlabeled primary antibodies. It is a suitable way to avoid freeze-thaw cycles.
- Please refer to our **tips and hints for subsequent storage** of reconstituted antibodies and control peptides and proteins.