SYSY Antibodies

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Arc

Cat.No. 156 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For **reconstitution** add 50 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 : 500 up to 1 : 2000 (AP staining) **IP**: yes **ICC**: 1 : 1000 **IHC**: 1 : 1000 **IHC-P (FFPE)**: 1 : 1000 **ELISA**:
Immunogen	Full-length recombinant mouse Arc (UniProt Id: Q9WV31)
Reactivity	Reacts with: rat (Q63053), mouse (Q9WV31). No signal: zebrafish. Other species not tested yet.
Specificity	Specific for arc. K.O. validated PubMed: 22539853

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

Background

Immediate-early genes (IEGs) are rapidly induced after patterned synaptic activity. Genes that are involved in this complex response code for transcription and growth factors, metabolic and signaling enzymes, small GTP binding proteins and structural proteins. Some of these proteins may play a crucial role in long term plasticity which is important for learning processes.
The **a**ctivity **r**egulated **c**ytoskeleton associated protein **Arc** or **Arg 3.1** is enriched in dendrites and colocalizes with F-Actin. Direct interaction of Arc with actin has also been demonstrated by biochemical studies.

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

Selected References for 156 003

Activity-regulated cytoskeletal-associated protein (Arc) in presynaptic terminals and extracellular vesicles in hippocampal synapses.
Ringsevjen H, Egbenya DL, Bieler M, Davanger S, Hussain S
Frontiers in molecular neuroscience (2023) 16: 1225533. . **WB, IHC, EM; tested species: rat**

Rapid translation of Arc/Arg3.1 selectively mediates mGluR-dependent LTD through persistent increases in AMPAR endocytosis rate.
Waung MW, Pfeiffer BE, Nosyreva ED, Ronesi JA, Huber KM
Neuron (2008) 591: 84-97. . **IHC, ICC; tested species: rat**

Activity-Regulated Cytoskeleton-Associated Protein Controls AMPAR Endocytosis through a Direct Interaction with Clathrin-Adaptor Protein 2.
DaSilva LL, Wall MJ, P de Almeida L, Wauters SC, Januário YC, Müller J, Corrêa SA
eNeuro () 33: . . **IP, WB**

Sevoflurane-induced disruption of critical period Arc signaling drives aberrant microglial synaptic pruning and cognitive deficits.
Chen BH, Chen YR, Zheng LY, Cai HJ, Ke XL, Li SY, Chen ZJ, Zhang XN, Zhou FQ, Chen G
Acta pharmacologica Sinica (2026) : . . **WB, IHC; tested species: mouse**

ARC/ARG3.1 binds the nuclear polyadenylate-binding protein RRM and regulates neuronal activity-dependent formation of nuclear speckles.
Kanhema T, Parobczak K, Patil S, Holm-Kaczmarek D, Hallin EI, Ludwiczak J, Szczepankiewicz AA, Pauzin FP, Mahboob A, Szum A, Ishizuka Y, et al.
Cell reports (2025) 444: 115525. . **WB, IHC; tested species: rat**

Cell-type- and locus-specific epigenetic editing of memory expression.
Coda DM, Watt L, Glauser L, Batiuk MY, Burns AM, Stahl CL, Wong LY, Gräff J
Nature genetics (2025) 5711: 2661-2668. . **ICC, IHC; KD verified; tested species: mouse**

Neuronal activity drives IGF2 expression from pericytes to form long-term memory.
Pandey K, Bessières B, Sheng SL, Taranda J, Osten P, Sandovici I, Constancia M, Alberini CM
Neuron (2023) 11123: 3819-3836.e8. . **WB, IHC; tested species: mouse**

Arc controls alcohol cue relapse by a central amygdala mechanism.
Pagano R, Salamian A, Zielinski J, Beroun A, Nalberczak-Skóra M, Skonieczna E, Cały A, Tay N, Banaschewski T, Desrivières S, Grigis A, et al.
Molecular psychiatry (2023) 282: 733-745. . **WB, IHC; KO verified; tested species: mouse**

Sex-dependent responsiveness of hippocampal neurons to sex neurosteroids: A role of Arc/Arg3.1.
Brökling J, Brunne B, Rune GM
Journal of neuroendocrinology (2022) : e13090. . **WB, ICC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/156003 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.