SYSY Antibodies

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Homer1/2/3

Cat.No. 160 103; 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 : 1000 (AP staining) **IP**: not tested yet **ICC**: 1 : 200 up to 1 : 500 (see remarks) **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500 **EM**: external data (see remarks)
Immunogen	Mix of recombinant proteins corresponding to AA 1 to 196 from human Homer 1, AA 1 to 176 from rat Homer 2 and AA 1 to 177 from rat Homer 3
Reactivity	Reacts with: human (Q86YM7, Q9NSB8, Q9NSC5), rat (Q9Z214, O88801, Q9Z2X5), mouse (Q9Z2Y3, Q9QWW1, Q99JP6), zebrafish. Other species not tested yet.
Specificity	AA 1-120 were used for affinity purification which are homologous in homer 1, 2, and 3.
Remarks	**ICC**: 4% formaldehyde/PFA fixation is recommended. The following fixatives are not advised: methanol. **EM**: This antibody has been successfully applied and published for this method by customers (see application-specific references).

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

Background

Homer is a scaffolding protein of the post synaptic density (PSD) and enriched at excitatory synapses. The protein binds metabotropic glutamate receptors, TRPC1, proteins of the Shank family and others. By aggregating these proteins into clusters, Homer was suggested to organize distinct signalling domains.
Three isoforms, Homer 1, 2 and 3 have been described. Each of these isoforms is subject to alternative splicing yielding the splice variants a, b, c, d.

Selected References for 160 103

Metabotropic glutamate receptor 5/Homer interactions underlie stress effects on fear.
Tronson NC, Guzman YF, Guedea AL, Huh KH, Gao C, Schwarz MK, Radulovic J
Biological psychiatry (2010) 6811: 1007-15. . **WB, IHC**

Evolving prion-like tau conformers differentially alter postsynaptic proteins in neurons inoculated with distinct isolates of Alzheimer's disease tau.
Hromadkova L, Kim C, Haldiman T, Peng L, Zhu X, Cohen M, de Silva R, Safar JG
Cell & bioscience (2023) 131: 174. . **WB, ICC; tested species: mouse**

Homer is concentrated at the postsynaptic density and does not redistribute after acute synaptic stimulation.
Tao-Cheng JH, Thein S, Yang Y, Reese TS, Gallant PE
Neuroscience (2014) 266: 80-90. . **WB, EM**

Vascular signals coordinate cerebellar circuitry development.
Parrilla M, Hülse R, Jin J, D'Errico A, Redondo-Nectalí J, Srivastava S, Stuth F, Alivodej N, Llaó-Cid C, Aburto MR, Segarra M, et al.
Cell reports (2026) 458: 117732. . **IHC; tested species: mouse**

Truncating variants in the SHANK1 gene are associated with a spectrum of neurodevelopmental disorders.
May HJ, Jeong J, Revah-Politi A, Cohen JS, Chassevent A, Baptista J, Baugh EH, Bier L, Bottani A, Carminho A Rodrigues MT, Conlon C, et al.
Genetics in medicine : official journal of the American College of Medical Genetics (2021) 2310: 1912-1921. . **WB; tested species: mouse**

Visualizing Synaptic Multi-Protein Patterns of Neuronal Tissue With DNA-Assisted Single-Molecule Localization Microscopy.
Narayanasamy KK, Stojic A, Li Y, Sass S, Hesse MR, Deussner-Helfmann NS, Dietz MS, Kuner T, Klevanski M, Heilemann M
Frontiers in synaptic neuroscience (2021) 13: 671288. . **IHC; tested species: rat**

Autism-associated SHANK3 missense point mutations impact conformational fluctuations and protein turnover at synapses.
Bucher M, Niebling S, Han Y, Molodenskiy D, Hassani Nia F, Kreienkamp HJ, Svergun D, Kim E, Kostyukova AS, Kreutz MR, Mikhaylova M, et al.
eLife (2021) 10: . . **ICC; tested species: rat**

Volumetric super-resolution imaging by serial ultrasectioning and stochastic optical reconstruction microscopy in mouse neural tissue.
Vatan T, Minehart JA, Zhang C, Agarwal V, Yang J, Speer CM
STAR protocols (2021) 24: 100971. . **IHC; tested species: mouse**

Growth-Promoting Treatment Screening for Corticospinal Neurons in Mouse and Man.
Hanuscheck N, Schnatz A, Thalman C, Lerch S, Gärtner Y, Domingues M, Bitar L, Nitsch R, Zipp F, Vogelaar CF
Cellular and molecular neurobiology (2020) : . . **ICC; tested species: human**

Volume gradients in inner hair cell-auditory nerve fiber pre- and postsynaptic proteins differ across mouse strains.
Reijntjes DOJ, Köppl C, Pyott SJ
Hearing research (2020) 390: 107933. . **IHC; tested species: mouse**

Automated highly multiplexed super-resolution imaging of protein nano-architecture in cells and tissues.
Klevanski M, Herrmannsdoerfer F, Sass S, Venkataramani V, Heilemann M, Kuner T
Nature communications (2020) 111: 1552. . **IHC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/160103 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.