SYSY Antibodies

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Homer1b/c

Cat.No. 160 023; 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**: yes **ICC**: 1 : 500 **IHC**: 1 : 200 up to 1 : 500 **IHC-P (FFPE)**: not tested yet **IHC-Fr**: 1 : 500 (see remarks) **EM**: external data (see remarks)
Immunogen	Recombinant protein corresponding to the c-terminal half of human Homer 1b (UniProt Id: Q86YM7-1)
Reactivity	Reacts with: human (Q86YM7-1), rat (Q9Z214-2, Q9Z214-1), mouse. Other species not tested yet.
Specificity	Specific for homer 1b and 1c; no cross-reactivity to homer 1a.
Matching control	160-02P
Remarks	**IHC-Fr**: Acetone fixation is recommended. **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 localized in the postsynaptic density (PSD) and is highly enriched at excitatory synapses. It acts as a molecular adaptor by binding to metabotropic glutamate receptors (mGluRs) (1), TRPC1 channels, Shank family proteins (2), and several other signaling molecules, organizing them into distinct clusters and thereby establishing specific signaling domains within the PSD.
By cross-linking these proteins, Homer plays a crucial role in structural and functional organization of the PSD, contributing to the maturation of dendritic spines and the regulation of synaptic plasticity. Homer and Shank, in particular, form a mesh-like matrix that serves as a platform for assembly of other PSD proteins (3).
There are three main Homer isoforms—Homer1, Homer2, and Homer3—each of which is subject to alternative splicing, producing multiple splice variants such as a, b, c, and d. These variants can have distinct functional properties, and their dynamic redistribution at synapses is involved in remodeling the PSD in response to neuronal activity (4).
Emerging evidence suggests broader roles for Homer1b/c beyond synaptic scaffolding, including in non-neuronal contexts, although their specific involvement in cancer remains unclear (5).

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

Selected References for 160 023

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; tested species: rat**

Selective Localization of Shanks to VGLUT1-Positive Excitatory Synapses in the Mouse Hippocampus.
Heise C, Schroeder JC, Schoen M, Halbedl S, Reim D, Woelfle S, Kreutz MR, Schmeisser MJ, Boeckers TM
Frontiers in cellular neuroscience (2016) 10: 106. . **IHC**

NMDA-induced accumulation of Shank at the postsynaptic density is mediated by CaMKII.
Tao-Cheng JH, Yang Y, Bayer KU, Reese TS, Dosemeci A
Biochemical and biophysical research communications (2014) 4501: 808-11. . **ICC**

Microglia drive synaptic and functional connectivity deficits in the Ts65Dn mouse model of Down syndrome by affecting inhibition.
Tiberi A, Montagni E, Borgonovo G, Coulomb E, Restani L, Mascaro ALA, Capsoni S, Cattaneo A
Acta neuropathologica communications (2025) 141: 21. . **ICC; tested species: mouse**

A single 24 h maternal separation at PND 9 promotes behavioral resilience of female C57BL/6J mice and the possible role of hippocampal Homer1a.
Hao Y, Niu Y, Shi F, Zhang L, Peng C, Yan Z, Chen X, Xu H
Heliyon (2024) 105: e27037. . **WB; tested species: mouse**

Nova proteins direct synaptic integration of somatostatin interneurons through activity-dependent alternative splicing.
Ibrahim LA, Wamsley B, Alghamdi N, Yusuf N, Sevier E, Hairston A, Sherer M, Jaglin XH, Xu Q, Guo L, Khodadadi-Jamayran A, et al.
eLife (2023) 12: . . **IHC; tested species: mouse**

Axonal plasticity in response to active forces generated through magnetic nano-pulling.
Falconieri A, De Vincentiis S, Cappello V, Convertino D, Das R, Ghignoli S, Figoli S, Luin S, Català-Castro F, Marchetti L, Borello U, et al.
Cell reports (2022) 421: 111912. . **ICC; tested species: mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/160023 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.