SYSY Antibodies

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Homer1b/c

Cat.No. 160 022; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°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 : 500 **IHC**: not tested yet **IHC-P**: not tested yet
Immunogen	Recombinant protein corresponding to the c-terminal half of human Homer 1b (UniProt Id: Q86YM7-1)
Reactivity	Reacts with: rat (Q9Z214), mouse, human (Q86YM7-1). Other species not tested yet.
Specificity	Specific for homer 1b and 1c; no cross-reactivity to homer 1a.
Matching control	160-02P

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 160 022

Expression Analysis of Zinc Transporters in Nervous Tissue Cells Reveals Neuronal and Synaptic Localization of ZIP4.
De Benedictis CA, Haffke C, Hagmeyer S, Sauer AK, Grabrucker AM
International journal of molecular sciences (2021) 229: . . **ICC, IHC; tested species: mouse**

Combined expansion and STED microscopy reveals altered fingerprints of postsynaptic nanostructure across brain regions in ASD-related SHANK3-deficiency.
Delling JP, Bauer HF, Gerlach-Arbeiter S, Schön M, Jacob C, Wagner J, Pedro MT, Knöll B, Boeckers TM
Molecular psychiatry (2024) 2910: 2997-3009. . **EXM; tested species: human,mouse**

Pharmacological enhancement of mGlu5 receptors rescues behavioral deficits in SHANK3 knock-out mice.
Vicidomini C, Ponzoni L, Lim D, Schmeisser MJ, Reim D, Morello N, Orellana D, Tozzi A, Durante V, Scalmani P, Mantegazza M, et al.
Molecular psychiatry (2017) 225: 689-702. . **WB; tested species: mouse**

Immune activation during pregnancy exacerbates ASD-related alterations in Shank3-deficient mice.
Atanasova E, Arévalo AP, Graf I, Zhang R, Bockmann J, Lutz AK, Boeckers TM
Molecular autism (2023) 141: 1. . **WB; tested species: mouse**

Shank2/3 double knockout-based screening of cortical subregions links the retrosplenial area to the loss of social memory in autism spectrum disorders.
Garrido D, Beretta S, Grabrucker S, Bauer HF, Bayer D, Sala C, Verpelli C, Roselli F, Bockmann J, Proepper C, Catanese A, et al.
Molecular psychiatry (2022) : . . **IHC; tested species: mouse**

Activation of the medial preoptic area (MPOA) ameliorates loss of maternal behavior in a Shank2 mouse model for autism.
Grabrucker S, Pagano J, Schweizer J, Urrutia-Ruiz C, Schön M, Thome K, Ehret G, Grabrucker AM, Zhang R, Hengerer B, Bockmann J, et al.
The EMBO journal (2021) : e104267. . **WB; tested species: mouse**

Altered Behaviors and Impaired Synaptic Function in a Novel Rat Model With a Complete Shank3 Deletion.
Song TJ, Lan XY, Wei MP, Zhai FJ, Boeckers TM, Wang JN, Yuan S, Jin MY, Xie YF, Dang WW, Zhang C, et al.
Frontiers in cellular neuroscience (2019) 13: 111. . **WB; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/160022 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 a 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.