

Homer3

Cat.No. 160 303; 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 ₂ 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	WB: 1 : 1000 (AP staining) IP: not tested yet ICC: 1 : 250 IHC: 1 : 500 IHC-P: 1 : 500 Clarity: 1 : 300 (see remarks)
Immunogen	Recombinant protein corresponding to AA 1 to 177 from rat Homer3 (UniProt Id: Q9Z2X5)
Reactivity	Reacts with: rat (Q9Z2X5). Other species not tested yet.
Specificity	AA 122-177, unique for homer 3, were used for affinity purification.
Matching control	160-3P
Remarks	Clarity: This antibody has been successfully used for CLARITY application in human brain (Woelfle et al., 2023; PMID: 37221592).

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 160 303

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**

CLARITY increases sensitivity and specificity of fluorescence immunostaining in long-term archived human brain tissue. Woelfle S, Deshpande D, Feldengut S, Braak H, Del Tredici K, Roselli F, Deisseroth K, Michaelis J, Boeckers TM, Schön M *BMC biology* (2023) 211: 113. . **CLARITY; tested species: human**

Benchmarking miniaturized microscopy against two-photon calcium imaging using single-cell orientation tuning in mouse visual cortex.

Glas A, Hübener M, Bonhoeffer T, Goltstein PM *PloS one* (2019) 144: e0214954. . **IHC; tested species: mouse**

Early molecular layer interneuron hyperactivity triggers Purkinje neuron degeneration in SCA1. Pilotto F, Douthwaite C, Diab R, Ye X, Al Qassab Z, Tietje C, Mounassir M, Odriozola A, Thapa A, Buijsen RAM, Lagache S, et al. *Neuron* (2023) : . . **IHC; tested species: mouse**

Brain-region-specific changes in neurons and glia and dysregulation of dopamine signaling in Grin2a mutant mice. Farsi Z, Nicoletta A, Simmons SK, Aryal S, Shepard N, Brenner K, Lin S, Herzog L, Moran SP, Stalnakar KJ, Shin W, et al. *Neuron* (2023) 11121: 3378-3396.e9. . **WB; tested species: mouse**

Adult restoration of Shank3 expression rescues selective autistic-like phenotypes.

Mei Y, Monteiro P, Zhou Y, Kim JA, Gao X, Fu Z, Feng G *Nature* (2016) 5307591: 481-4. . **WB; tested species: mouse**

Selected General References

Homer2 and Homer3 interact with amyloid precursor protein and inhibit Abeta production. Parisiadou L, Bethani I, Michaki V, Krousti K, Rapti G, Efthimiopoulos S *Neurobiology of disease* (2008) 303: 353-64. .

Differential expression of Homer family proteins in the developing mouse brain. Shiraishi Y, Mizutani A, Yuasa S, Mikoshiba K, Furuichi T *The Journal of comparative neurology* (2004) 4734: 582-99. .

Molecular characterisation of two structurally distinct groups of human homers, generated by extensive alternative splicing. Soloviev MM, Ciruela F, Chan WY, McIlhinney RA *Journal of molecular biology* (2000) 2955: 1185-200. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/160303> 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.