SYSY Antibodies

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MDGA1

Cat.No. 421 002; 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**: external data (see remarks) **IP**: external data (see remarks) **ICC**: not tested yet **IHC**: 1 : 500 **IHC-P (FFPE)**: not tested yet **IHC-Fr**: external data (see remarks)
Immunogen	Recombinant protein corresponding to AA 19 to 917 from mouse MDGA1 (UniProt Id: Q0PMG2)
Reactivity	Reacts with: mouse (Q0PMG2). Other species not tested yet.
Specificity	K.O. validated PubMed: 35532105
Remarks	**WB**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols. **IP**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols. **IHC-Fr**: This antibody has been successfully applied and published for this method by customers (see application-specific references). It has not been validated using our standard protocols.

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

Background

MAM **d**omain **G**PI **a**nchor **1** and 2 proteins (**MDGA1** and MDGA2) are Ig superfamily adhesion molecules composed of six IG domains, a fibronectin III domain, a MAM domain, and a GPI anchor. MDGAs are required for radial migration and positioning of cortical neurons making it a useful layer and area specific marker during neural development.
They play a role in the formation or maintenance of Neuroligin2 positive inhibitory synapses.

Selected References for 421 002

MDGAs are fast-diffusing molecules that delay excitatory synapse development by altering neuroligin behavior.
Toledo A, Letellier M, Bimbi G, Tessier B, Daburon S, Favereaux A, Chamma I, Vennekens K, Vanderlinden J, Sainlos M, de Wit J, et al.
eLife (2022) 11: . . **WB, IP, IHC; KO verified; tested species: mouse**

Functional Neuroligin-2-MDGA1 interactions differentially regulate synaptic GABAARs and cytosolic gephyrin aggregation.
Zeppillo T, Ali H, Ravichandran S, Ritter TC, Wenger S, López-Murcia FJ, Gideons E, Signorelli J, Schmeisser MJ, Wiltfang J, Rhee J, et al.
Communications biology (2024) 71: 1157. . **WB, IHC_FR; KO verified; tested species: mouse**

Localization and Functional Characterization of MDGA1 in Mouse Hippocampus.
Sandoval MA, Bemben MA, Leana-Sandoval G, Le AA, Acosta-Soto L, Chau VN, Incontro S, Gall CM, Nicoll RA, Díaz-Alonso J
The Journal of neuroscience : the official journal of the Society for Neuroscience (2026) 466: . . **WB, IHC; KO verified; tested species: mouse**

Chronic stress induces depression through MDGA1-Neuroligin2 mediated suppression of inhibitory synapses in the lateral habenula.
Wang X, Wei H, Hu Z, Jiang J, Dong X, Zhu J, Chen H, Brose N, Lipstein N, Xu T, Connor SA, et al.
Theranostics (2025) 155: 1842-1863. . **WB, IHC; KO verified; tested species: mouse**

Proteomics analysis of the brain from a Gaucher disease mouse identifies pathological pathways including a possible role for transglutaminase 1.
Blumenreich S, Ben-Yashar DP, Shalit T, Kupervaser M, Milenkovic I, Joseph T, Futerman AH
Journal of neurochemistry (2024) 1681: 52-65. . **WB, IHC; KD verified; tested species: rat**

Upregulation of Spinal MDGA1 in Rats After Nerve Injury Alters Interactions Between Neuroligin-2 and Postsynaptic Scaffolding Proteins and Increases GluR1 Subunit Surface Delivery in the Spinal Cord Dorsal Horn.
Li HL, Guo RJ, Ai ZR, Han S, Guan Y, Li JF, Wang Y
Neurochemical research (2024) 492: 507-518. . **WB, IHC; tested species: rat**

Selected General References

MDGAs interact selectively with neuroligin-2 but not other neuroligins to regulate inhibitory synapse development.
Lee K et al. Proc. Natl. Acad. Sci. U.S.A. (2013) PubMed:23248271

IgSF molecule MDGA1 is involved in radial migration and positioning of a subset of cortical upper-layer neurons.
Ishikawa T et al. Dev. Dyn. (2011) PubMed:21104742

Radial migration of superficial layer cortical neurons controlled by novel Ig cell adhesion molecule MDGA1.
Takeuchi A et al. J. Neurosci. (2006) PubMed:16641224

MDGA1, an IgSF molecule containing a MAM domain, heterophilically associates with axon- and muscle-associated binding partners through distinct structural domains.
Fujimura Y et al. Brain Res. (2006) PubMed:16782075

Access the online factsheet including applicable protocols at https://sysy.com/product/421002 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.