SYSY Antibodies

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EAAT1 (GLAST) cytoplasmic domain

Cat.No. 250 114; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For **reconstitution** add 100 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 up to 1 : 5000 (AP staining) **IP**: not tested yet **ICC**: 1 : 500 up to 1 : 1000 **IHC**: 1 : 500 up to 1 : 1000 **IHC-P (FFPE)**: 1 : 500
Immunogen	Synthetic peptide corresponding to AA 522 to 541 from rat EAAT1 (UniProt Id: P24942)
Reactivity	Reacts with: rat (P24942), mouse (P56564). No signal: human (P43003). Other species not tested yet.
Matching control	250-11P

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

Background

Glutamate is the major excitatory neurotransmitter in the mammalian central nervous system. After the release of glutamate from synaptic vesicles into the synaptic cleft during neurotransmission, excitatory amino acid transporters (EAATs) remove extracellular glutamate to avoid excitotoxic levels (1).
Five EAATs with differential expression patterns have been described so far: **EAAT1**, also referred to as GLAST and SLC1A3, has neuroprotective potential following ischemia and occurs in reactive astrocytes and activated microglia. EAAT2 (GLT-1, SLC1A2) is the most abundant isoform and is primarily expressed in astrocytes. Both variants show high levels in brain and retina. EAAT3 / SLC1A1, EAAT4 / SLC1A6 and EAAT5 / SLC1A7 are expressed in neurons (2). EAAT4 shows weak expression in the forebrain and high levels in the cerebellum, where it mainly locates to Purkinje cells (3). EAAT5 primarily occurs in the retina, where it locates very close to glutamate release sites. In K.O. mice flicker resolution is considerably compromised (4). Recent findings suggest that EAAT5 is an abundant isoform, expressed also in non-neuronal peripheral tissues (5).

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

Selected References for 250 114

The expression and function of glutamate aspartate transporters in Bergmann glia are decreased in neuronal nitric oxide synthase-knockout mice during postnatal development.
Tellios V, Maksoud MJE, Lu WY
Glia (2022) : . . **WB, IHC; tested species: mouse**

Neuroepithelial progenitors generate and propagate non-neuronal action potentials across the spinal cord.
Arulkandarajah KH, Osterstock G, Lafont A, Le Corronc H, Escalas N, Corsini S, Le Bras B, Chenane L, Boeri J, Czarnecki A, Mouffle C, et al.
Current biology : CB (2021) 3120: 4584-4595.e4. . **IHC; tested species: mouse**

Loss of excitatory amino acid transporter restraint following chronic intermittent hypoxia contribute to synaptic alterations in nucleus tractus solitarii.
Martinez D, Rogers RC, Hasser EM, Hermann GE, Kline DD
Journal of neurophysiology (2020) : . . **WB; tested species: rat**

Cannabinoid Type 1 Receptor is Undetectable in Rodent and Primate Cerebral Neural Stem Cells but Participates in Radial Neuronal Migration.
Morozov YM, Mackie K, Rakic P
International journal of molecular sciences (2020) 2122: . . **IHC; tested species: mouse**

Selected General References

Phosphatidylcholine metabolism after transfer from lipid emulsions injected intravenously in rats. Implications for high-density lipoprotein metabolism.
Martins IJ et al. Biochim Biophys Acta (1989) PubMed:2804050

Climbing Fiber-Mediated Spillover Transmission to Interneurons Is Regulated by EAAT4.
Malhotra S et al. J Neurosci (2021) PubMed:34400517

Excitatory amino acid transporter EAAT5 improves temporal resolution in the retina.
Gehlen J et al. eNeuro (2021) PubMed:34772693

Access the online factsheet including applicable protocols at https://sysy.com/product/250114 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.