SYSY Antibodies

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CD39 (ENTPD1) human specific

Cat.No. HS-493 117; Monoclonal rat antibody, 100 µg purified IgG (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µg purified IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 100 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**: not tested yet **IP**: not tested yet **ICC**: 1 : 500 **IHC**: not tested yet **IHC-P (FFPE)**: 1 : 100
Clone	SY-337E3C10
Subtype	IgG2b (κ light chain)
Immunogen	Synthetic peptide corresponding to residues surrounding AA 310 of human CD39 (UniProt Id: P49961)
Reactivity	Reacts with: human (P49961). No signal: mouse (P55772), rat (P97687). Other species not tested yet.

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

Background

CD39, also known as ENTPD1 (ecto-nucleoside triphosphate diphosphohydrolase), is a cell surface ectoenzyme that catalyzes ATP and ADP into AMP, which is subsequently converted into adenosine by CD73 (NT5E, ecto-5□-nucleotidase). The balance between extracellular ATP and adenosine is crucial for immune homeostasis and is tightly controlled by enzymatic activity, with CD39 serving as the rate-limiting enzyme (1). CD39 is highly expressed on vascular and immune cell populations such as B cells, NK cells, dendritic cells, Langerhans cells, monocytes, macrophages, mesangial cells, neutrophils and regulatory T cells (2). High CD39 expression has been found in numerous cancers, either on the tumor surface or in infiltrating immune cells. Targeting the CD39/CD73 pathway is currently explored as a therapeutic strategy for cancer treatment (3). In the brain, CD39 is constitutively expressed by microglia, endothelial and smooth muscle cells of the vasculature and involved in microglial processes ramification (4) and blood-brain barrier function. Significant induction of CD39 protein in microglia has been demonstrated in several neuroinflammation models. CD39 up-regulation by reactive microglia is suggested to be associated with an anti-inflammatory phenotype (5).

Selected General References

What Else Can CD39 Tell Us?
Zhao H et al. Front Immunol (2017) PubMed:28690614

CD39/CD73/A2AR pathway and cancer immunotherapy.
Xia C et al. Mol Cancer (2023) PubMed:36859386

Induction of NTPDase1/CD39 by Reactive Microglia and Macrophages Is Associated With the Functional State During EAE.
Jakovljevic M et al. Front Neurosci (2019) PubMed:31105520

The adenosine generating enzymes CD39/CD73 control microglial processes ramification in the mouse brain.
Matyash M et al. PLoS One (2017) PubMed:28376099

CD39 and CD73 in immunity and inflammation.
Antonioli L et al. Trends Mol Med (2013) PubMed:23601906

Access the online factsheet including applicable protocols at https://sysy.com/product/HS-493117 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.