SYSY Antibodies

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T-bet (TBX21) mouse specific

Cat.No. HS-487 017; 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 recommended **IP**: not tested yet **ICC**: not tested yet **IHC**: not recommended **IHC-P (FFPE)**: 1 : 100 (see remarks)
Clone	SY-87E12
Subtype	IgG2a (κ light chain)
Immunogen	Synthetic peptide corresponding to residues surrounding AA 470 of mouse T-bet (UniProt Id: Q9JKD8)
Reactivity	Reacts with: mouse (Q9JKD8). No signal: human (Q9UL17). Other species not tested yet.
Remarks	**IHC-P (FFPE)**: Antigen retrieval in pressure cooker is recommended. The antibody shows some unspecific staining in mouse cerebellum.

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

Background

T-bet (also known as Tbx21) belongs to the T-box subfamily Tbr1, and is an important transcription factor for the immune system. T-bet is a potent transactivator of the IFNγ gene and its expression correlates with IFNγ expression in Th1 cells, NK cells, and B cells (1). In CD4 T cells, Th1 and Th2 lineage commitment is regulated by opposing actions of T-bet and GATA-3 (2). T-bet promotes CD4 Th1 differentiation and represses alternative cell fates like Th2, or Th17, whereas GATA-3 is the lineage determining transcription factor for Th2 cells (2). CD8+ T cells require T-bet expression to differentiate into effector cells (3). In NK cells, T-bet expression is required for NK cell maturation (4).

Selected General References

A novel transcription factor, T-bet, directs Th1 lineage commitment.
Szabo SJ et al. Cell (2000) PubMed:10761931

Expression Regulation and Function of T-Bet in NK Cells.
Huang C et al. Front Immunol (2021) PubMed:34675939

The transcription factors T-bet and GATA-3 control alternative pathways of T-cell differentiation through a shared set of target genes.
Jenner RG et al. Proc Natl Acad Sci U S A (2009) PubMed:19805038

Antigen-driven effector CD8 T cell function regulated by T-bet.
Sullivan BM et al. Proc Natl Acad Sci U S A (2003) PubMed:14673093

Access the online factsheet including applicable protocols at https://sysy.com/product/HS-487017 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.