

## CD45 mouse specific

Cat.No. HS-427 017; Monoclonal rat antibody, 200 µl purified IgG (lyophilized)

### Data Sheet

Reconstitution/ Storage	200 µl purified IgG, lyophilized. Albumin and azide were added for stabilization. For <b>reconstitution</b> add 200 µl H <sub>2</sub> O. 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	<b>WB:</b> not recommended <b>IP:</b> not tested yet <b>ICC:</b> not tested yet <b>IHC:</b> 1 : 100 <b>IHC-P:</b> 1 : 100 <b>IHC-Fr:</b> 1 : 100 (see remarks)
Clone	GHH45/97A2
Subtype	IgG2b
Immunogen	Synthetic peptide corresponding to AA 1284 to 1291 from mouse PTPRC (UniProt Id: P06800-1)
Reactivity	Reacts with: mouse (P06800-1). No signal: human, rat. Other species not tested yet.
Specificity	The antibody recognizes all CD45 isoforms.
Remarks	<b>IHC-Fr:</b> MeOH fixation is recommended.

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

## Background

**CD45**, also designated as Leukocyte Common Antigen (**LCA**) or protein tyrosine phosphatase receptor type C (**PTPRC**), is a type I transmembrane protein expressed on all nucleated cells of the hematopoietic system, except mature erythrocytes and platelets (1). Several isoforms of CD45 have been identified which are generated by differential splicing of exons 4, 5, and 6, thereby generating the CD45RA, RB and RC isoforms, respectively (2). Expression of the isoforms differs according to cell type and functional status. The CD45RABC (B220) long isoform is almost exclusively expressed on B cells (3). Naïve human T cells express the high molecular weight isoform CD45RA. Activation of T cells and differentiation to memory T cells is accompanied by exon exclusion for production of the short isoform CD45RO (3). CD45 has been shown to be an essential regulator of T- and B-cell antigen receptor signaling. Thus, CD45-deficient humans and mice develop a severe-combined immunodeficiency (SCID) phenotype (4). In macrophages, CD45 plays a central role in their adhesion, morphology and motility (5).

## Selected References for HS-427 017

Cell-programmed nutrient partitioning in the tumour microenvironment.  
Reinfeld BI, Madden MZ, Wolf MM, Chytil A, Bader JE, Patterson AR, Sugiura A, Cohen AS, Ali A, Do BT, Muir A, et al. Nature (2021) 5937858: 282-288. . **IHC-P; tested species: mouse**

## Selected General References

CD45: an emerging role as a protein tyrosine phosphatase required for lymphocyte activation and development.  
Trowbridge IS, Thomas ML  
Annual review of immunology (1994) 12: 85-116. .

CD45 isoforms in T cell signalling and development.  
McNeill L, Cassidy RL, Sarkardei S, Cooper JC, Morgan G, Alexander DR  
Immunology letters (2004) 921-2: 125-34. .

CD45: a critical regulator of signaling thresholds in immune cells.  
Hermiston ML, Xu Z, Weiss A  
Annual review of immunology (2003) 21: 107-37. .

Epitopes on CD45R [T200] molecules define differentiation antigens on murine B and T lymphocytes.  
Birkeland ML, Metlay J, Sanders VM, Fernandez-Botran R, Vitetta ES, Steinman RM, Puré E  
The Journal of molecular and cellular immunology : JMCI (1988) 42: 71-85. .

CD45 regulates signal transduction and lymphocyte activation by specific association with receptor molecules on T or B cells.  
Ledbetter JA, Tonks NK, Fischer EH, Clark EA  
Proceedings of the National Academy of Sciences of the United States of America (1988) 8522: 8628-32. .

Access the online factsheet including applicable protocols at <https://susy-histosure.com/product/HS-427017> 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.