

## CD68

Cat.No. HS-460 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

### Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin and azide were added for stabilization. For <b>reconstitution</b> add 50 µl H <sub>2</sub> O 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	<b>WB:</b> 1 : 1000 (AP staining) <b>IP:</b> not tested yet <b>ICC:</b> not tested yet <b>IHC:</b> 1 : 2000 up to 1 : 5000 (see remarks) <b>IHC-P:</b> 1 : 1000 up to 1 : 4000
Immunogen	Synthetic peptide corresponding to residues surrounding AA 100 of mouse CD68 (UniProt Id: P31996)
Reactivity	Reacts with: mouse (P31996), rat. No signal: human (P34810). Other species not tested yet.
Remarks	<b>IHC:</b> Heat-mediated antigen retrieval (in citrate buffer pH 6) is required for immunohistochemical staining

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

## Background

**CD68**, also called Lamp-4 in humans or macrosialin in mice, is a highly glycosylated type I transmembrane protein that belongs to the lysosome associated membrane protein (LAMP) family **(1)**. CD68 expression is increased in cells associated with elevated phagocytic and degradative activity. High CD68 expression is detected in cells of the mononuclear phagocyte lineage including macrophages, osteoclasts, and myeloid dendritic cells **(2)**. CD68 is a marker of activated microglia and only expressed at low levels in resting microglia **(3)**. Staining for CD68 is predominantly intracellular, only 10 -15% of it is found on the cell surface. In oncology research, CD68 is the major biomarker for quantification of tumor-associated macrophages (TAMs) **(4)**. High infiltration of CD68+ macrophages is an independent prognostic factor for overall survival in several tumor entities **(5)**.

## Selected General References

Macrosialin, a mouse macrophage-restricted glycoprotein, is a member of the lamp/lgp family. Holness CL, da Silva RP, Fawcett J, Gordon S, Simmons DL. The Journal of biological chemistry (1993) 268(13): 9661-6. .

Tumor-Associated Macrophages in Human Breast, Colorectal, Lung, Ovarian and Prostate Cancers. Larionova I, Tuguzbaeva G, Ponomaryova A, Stakheyeva M, Cherdyntseva N, Pavlov V, Choinzonov E, Kzhyshkowska J. Frontiers in oncology (2020) 10: 566511. .

Prognostic value of tumor-associated macrophages in pancreatic cancer: a meta-analysis. Yu M, Guan R, Hong W, Zhou Y, Lin Y, Jin H, Hou B, Jian Z. Cancer management and research (2019) 11: 4041-4058. .

CD68/macrosialin: not just a histochemical marker. Chistiakov DA, Killingsworth MC, Myasoedova VA, Orekhov AN, Bobryshev YV. Laboratory investigation; a journal of technical methods and pathology (2017) 97(1): 4-13. .

Staining of HLA-DR, Iba1 and CD68 in human microglia reveals partially overlapping expression depending on cellular morphology and pathology. Hendrickx DAE, van Eden CG, Schuurman KG, Hamann J, Huitinga I. Journal of neuroimmunology (2017) 309: 12-22. .

Access the online factsheet including applicable protocols at <https://susy-histosure.com/product/HS-460003> 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.