

## Claudin5

Cat.No. 482 005; Polyclonal Guinea pig 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 up to 1 : 2000 (AP staining) <b>ICC:</b> 1 : 500 (see remarks) <b>IHC:</b> not recommended <b>IHC-P:</b> 1 : 200 <b>IHC-Fr:</b> 1 : 500 up to 1 : 1000 (see remarks) <b>IHC-G:</b> 1 : 500 up to 1 : 1000 (see remarks)
Immunogen	Recombinant protein corresponding to residues near the carboxy terminus of mouse Claudin5. (UniProt Id: O54942)
Reactivity	Reacts with: rat (Q9JKD6), mouse (O54942), dog. Other species not tested yet.
Remarks	<b>ICC:</b> Methanol fixation is recommended <b>IHC-Fr:</b> Methanol fixation is recommended. <b>IHC-G:</b> Fixation with 9% glyoxal, 8% acetic acid in ddH <sub>2</sub> O according to <a href="#">Konno et al. 2023</a> is recommended.

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

## Background

Claudin5 is predominantly expressed in endothelial cells, especially brain endothelial cells (1) and therefore it is thought that the paracellular permeability of the blood–brain barrier is largely determined by the expression levels of Claudin5. An initial study using Claudin5 knockout (KO) mice clearly showed that expression of Claudin5 in the blood–brain barrier is essential for preventing the entrance of molecules with molecular weights between 400 and 800 Da in the brain. (2) The size-selective modulation of blood–brain barrier permeability has an advantage in comparison to clinically performed methods for increasing blood–brain barrier permeability, namely intra-carotid hyperosmolar mannitol administration. Mannitol administration completely disrupts the blood–brain barrier by withdrawing water from endothelial cells and enabling the entrance of bloodborne proteins into the brain. (3,4)

## Selected General References

- A molecular atlas of cell types and zonation in the brain vasculature.  
Vanlandewijck M, He L, Mäe MA, Andrae J, Ando K, Del Gaudio F, Nahar K, Lebouvier T, Laviña B, Gouveia L, Sun Y, et al. *Nature* (2018) 5547693: 475-480. .
- Seizure-promoting effect of blood-brain barrier disruption.  
Marchi N, Angelov L, Masaryk T, Fazio V, Granata T, Hernandez N, Hallene K, Diglaw T, Franic L, Najm I, Janigro D, et al. *Epilepsia* (2007) 484: 732-42. .
- Size-selective loosening of the blood-brain barrier in claudin-5-deficient mice.  
Nitta T, Hata M, Gotoh S, Seo Y, Sasaki H, Hashimoto N, Furuse M, Tsukita S  
*The Journal of cell biology* (2003) 1613: 653-60. .
- Osmotic opening of the blood-brain barrier: principles, mechanism, and therapeutic applications.  
Rapoport SI  
*Cellular and molecular neurobiology* (2000) 202: 217-30. .

Access the online factsheet including applicable protocols at <https://sysy.com/product/482005> 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.