SYSY Antibodies

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# Calbindin D28k

**Cat.No. 214 008; Recombinant rabbit antibody, 50 µg recombinant IgG (lyophilized)**

## Data Sheet

| | |
|---|---|
| Reconstitution/ Storage | 50 µg purified recombinant IgG, lyophilized. Albumin and azide were added for stabilization. For **reconstitution** add 50 µl $H_2O$ to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use.<br>Antibodies should be stored at +4°C when still lyophilized. Do not freeze!<br>For detailed information, see back of the data sheet. |
| Applications | **WB**: 1 : 1000 (AP staining)<br>**IP**: not tested yet<br>**ICC**: 1 : 500<br>**IHC**: 1 : 500<br>**IHC-P (FFPE)**: 1 : 200 up to 1 : 1000 |
| Clone | Rb351C10 |
| Subtype | IgG1 (κ light chain) |
| Immunogen | Full-length recombinant human Calbindin D28k protein (UniProt Id: P05937) |
| Reactivity | Reacts with: human (P05937), rat (P07171), mouse (P12658), zebrafish, grashopper.<br>Other species not tested yet. |
| Matching control | 214-0P |
| Remarks | This antibody is a chimeric antibody based on the well known monoclonal mouse antibody clone 351C10. The constant regions of the heavy and light chains have been replaced by rabbit specific sequences. Therefore, the antibody can be used with standard anti-rabbit secondary reagents. The antibody has been expressed in mammalian cells. |

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

## Background

Calbindin D28k (CALB1, D28K or CAB27) and Calretinin (Calbindin D29k) are members of the EF-hand calcium-binding protein family, playing essential roles in intracellular calcium homeostasis, neuroprotection, and signal transduction (1). Calbindin D28k is widely expressed in tissues that experience high calcium influx, such as the brain, sensory organs, endocrine tissues, and the enteric nervous system (ENS). In the central nervous system (CNS), Calbindin D28k is an important marker for specific neuronal populations, particularly in Purkinje cells of the cerebellum and GABAergic and glutamatergic neurons of the cortex (2). Outside the CNS, Calbindin D28k plays crucial roles in non-neuronal tissues. In the retina, it contributes to photoreceptor function and calcium signaling (3). In the pancreas, it is present in α- and β-cells (4). Additionally, it was reported that 31% of myenteric neurons and up to 95% of submucosal neurons in the human ENS express calbindin, suggesting its involvement in both motor and secretory functions (5).

For more information on protein expression pattern, please refer to the overview image in our SYSY Antibodies ATLAS.

## Selected General References

'New' functions for 'old' proteins: the role of the calcium-binding proteins calbindin D-28k, calretinin and parvalbumin, in cerebellar physiology. Studies with knockout mice.
Schwaller B et al. Cerebellum (2002) PubMed:12879963

Calbindin D28k-Immunoreactivity in Human Enteric Neurons.
Zetzmann K et al. Int J Mol Sci (2018) PubMed:29316719

Types and density of calbindin D28k-immunoreactive ganglion cells in mouse retina.
Gu YN et al. Exp Eye Res (2016) PubMed:26874036

Calbindin-D28K immunoreactivity in the human cerebellar cortex.
Flace P et al. Anat Rec (Hoboken) (2014) PubMed:24719368

Expression of the novel epithelial Ca2+ channel ECaC1 in rat pancreatic islets.
Janssen SW et al. J Histochem Cytochem (2002) PubMed:12019295

Access the online factsheet including applicable protocols at https://sysy.com/product/214008 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.