SYSY Antibodies

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Calbindin D28k

Cat.No. 214 002; Polyclonal rabbit antibody, 200 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	200 µl antiserum, lyophilized. For **reconstitution** add 200 µl H_2O, then aliquot and store at -20°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**: 1 : 1000 up to 1 : 5000 (AP staining) **IP**: yes **ICC**: 1 : 5000 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 200
Immunogen	Full-length recombinant human Calbindin D28k protein (UniProt Id: P05937)
Reactivity	Reacts with: human (P05937), rat (P07171), mouse (P12658), monkey, ape, cow, chicken, zebrafish, turtle, grashopper. Other species not tested yet.
Matching control	214-0P

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 References for 214 002

Polylaminin recognition by retinal cells.
Hochman-Mendez C, Lacerda de Menezes JR, Sholl-Franco A, Coelho-Sampaio T
Journal of neuroscience research (2014) 921: 24-34. . **ICC; tested species: rat**

NGL-2 regulates pathway-specific neurite growth and lamination, synapse formation, and signal transmission in the retina.
Soto F, Watkins KL, Johnson RE, Schottler F, Kerschensteiner D
The Journal of neuroscience : the official journal of the Society for Neuroscience (2013) 3329: 11949-59. . **IHC**

Repetitive neuronal activation regulates cellular maturation state via nuclear reprogramming.
Murano T, Hagihara H, Tajinda K, Takao K, Takamiya Y, Katoh K, Robison AJ, Matsumoto M, Namihira M, Miyakawa T
Nature communications (2026) 171: . . **IHC; tested species: mouse**

Retrosplenial inputs drive visual representations in the medial entorhinal cortex.
Dubanet O, Higley MJ
Cell reports (2024) 437: 114470. . **IHC; tested species: mouse**

Striosomes control dopamine via dual pathways paralleling canonical basal ganglia circuits.
Lazaridis I, Crittenden JR, Ahn G, Hirokane K, Wickersham IR, Yoshida T, Mahar A, Skara V, Loftus JH, Parvataneni K, Meletis K, et al.
Current biology : CB (2024) : . . **ICC; tested species: mouse**

Alpha-synuclein pathology, microgliosis, and parvalbumin neuron loss in the amygdala associated with enhanced fear in the Thy1-aSyn model of Parkinson's disease.
Torres ERS, Stanojlovic M, Zelikowsky M, Bonsberger J, Hean S, Mulligan C, Baldauf L, Fleming S, Masliah E, Chesselet MF, Fanselow MS, et al.
Neurobiology of disease (2021) 158: 105478. . **IHC; tested species: mouse**

Plasmalogens regulate the AKT-ULK1 signaling pathway to control the position of the axon initial segment.
Ferreira da Silva T, Granadeiro LS, Bessa-Neto D, Luz LL, Safronov BV, Brites P
Progress in neurobiology (2021) 205: 102123. . **ICC; tested species: mouse**

Loss of Piccolo Function in Rats Induces Cerebellar Network Dysfunction and Pontocerebellar Hypoplasia Type 3-like Phenotypes.
Falck J, Bruns C, Hoffmann-Conaway S, Straub I, Plautz EJ, Orlando M, Munawar H, Rivalan M, Winter Y, Izsvák Z, Schmitz D, et al.
The Journal of neuroscience : the official journal of the Society for Neuroscience (2020) 4014: 2943-2959. . **IHC; tested species: rat**

Access the online factsheet including applicable protocols at https://sysy.com/product/214002 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.