SYSY Antibodies

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Calbindin D28k

Cat.No. 214 004; Polyclonal Guinea pig antibody, 100 µl antiserum (lyophilized)

Data Sheet

Reconstitution/ Storage	100 µl antiserum, lyophilized. For **reconstitution** add 100 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 : 500 **IHC**: 1 : 200 up to 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. 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 214 004

PKCγ-mediated Phosphorylation of Mtss1 Regulates the Dendritic Outgrowth and Spine Development of Cerebellar Purkinje Cells.
Torrents-Solé P, Sziber Z, Shimobayashi E, Kapfhammer JP
Molecular neurobiology (2025) 631: 168. . **ICC, IHC; tested species: mouse**

Non-canonical function of ADAM10 in presynaptic plasticity.
Bär J, Fanutza T, Reimann CC, Seipold L, Grohe M, Bolter JR, Delfs F, Bucher M, Gee CE, Schweizer M, Saftig P, et al.
Cellular and molecular life sciences : CMLS (2024) 811: 342. . **WB; tested species: mouse**

Single cell RNA sequencing uncovers cellular developmental sequences and novel potential intercellular communications in embryonic kidney.
Matsui I, Matsumoto A, Inoue K, Katsuma Y, Yasuda S, Shimada K, Sakaguchi Y, Mizui M, Kaimori JY, Takabatake Y, Isaka Y, et al.
Scientific reports (2021) 111: 73. . **IHC-P; tested species: mouse**

Impaired dynein function preserves spinal interneuron survival and positioning in an ALS-like mouse model.
Christoforidou E, Rowe JS, Simoes FA, Cassel R, Dupuis L, Leigh PN, Hafezparast M
PloS one (2026) 214: e0346246. . **IHC; tested species: mouse**

Modulation of mGluR1 signaling improves Purkinje cell dysfunction associated with spinocerebellar ataxia 14.
Sziber Z, Tang S, Torrents-Solé P, Kovacevic A, Kapfhammer JP
iScience (2026) 2911: 117976. . **IHC; tested species: mouse**

The prefrontal cortex controls memory organization in the hippocampus.
de Sousa AF, Zeidler ZE, Almeida-Filho DG, Shen Y, Luchetti A, Simanian S, Mardini M, DeNardo LA, Silva AJ
Nature neuroscience (2026) : . . **IHC; tested species: mouse**

Diversity and sensorimotor specialization of head direction cells in the mouse thalamus.
Hijazi S, Jiang S, Wülfing MS, Quach J, Lachance PA, Hasselmo ME, Viney TJ
Current biology : CB (2026) 3612: 3114-3130.e6. . **IHC; tested species: mouse**

Non-invasive quantitative assessment of kidney injury using near-infrared autofluorescence imaging.
Matsumoto A, Matsui I, Fushiki H, Kusunoki Y, Tamai N, Okushima H, Imai A, Shimada M, Harimoto T, Kato T, Hatano K, et al.
Kidney international (2026) : . . **IHC; tested species: mouse**

Non-allometric expansion and enhanced compartmentalization of Purkinje cell dendrites in the human cerebellum.
Busch SE, Hansel C
eLife (2025) 14: . . **IHC; tested species: human,mouse**

Access the online factsheet including applicable protocols at https://sysy.com/product/214004 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.