

## Calbindin D28k

Cat.No. 214 006; Polyclonal chicken antibody, 200 µl antibody (lyophilized)

### Data Sheet

Reconstitution/ Storage	200 µl antibody, lyophilized. For <b>reconstitution</b> add 200 µl H <sub>2</sub> O, 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	<b>WB:</b> 1 : 1000 up to 1 : 5000 (AP staining) <b>IP:</b> yes <b>ICC:</b> 1 : 5000 <b>IHC:</b> 1 : 200 up to 1 : 500 <b>IHC-P:</b> 1 : 200 <b>IHC-Fr:</b> 1 : 500 up to 1 : 1000 (see remarks)
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
Remarks	<b>IHC-Fr:</b> MeOH fixation is recommended.

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

### Background

Two isoforms of the vitamin D-dependent Ca-binding proteins have been described so far: **calbindin D28k**, also referred to as CALB 1, D-28k, and CAB 27, and calbindin D29k, also known as calretinin. These proteins are expressed in cells that have to handle a high calcium influx such as brain, bone, teeth, inner ear and others. Calbindins are believed to regulate cellular activity by suppressing or buffering intracellular calcium. In the brain calbindin D28k is a useful marker for specific neuronal cell types. It is particularly concentrated in the dendrites and perikarya of cerebellar Purkinje cells, but is also found in many GABAergic interneurons in the cortex.

### Selected References for 214 006

- Development and Optimization of a Multilayer Rat Purkinje Neuron Culture.  
Uggerud IM, Kråkenes T, Hirai H, Vedeler CA, Schubert M  
Cerebellum (London, England) (2023) . . . **ICC; tested species: rat**
- Amot and Yap1 regulate neuronal dendritic tree complexity and locomotor coordination in mice.  
Rojek KO, Krzemień J, Doleżyczek H, Boguszewski PM, Kaczmarek L, Konopka W, Ryłski M, Jaworski J, Holmgren L, Prószyński TJ  
PLoS biology (2019) 17(5): e3000253. . . **IHC; tested species: mouse**
- Climbing fibers provide essential instructive signals for associative learning.  
Silva NT, Ramírez-Buriticá J, Pritchett DL, Carey MR  
Nature neuroscience (2024) . . . **IHC; tested species: mouse**
- Fear learning and aversive stimuli differentially change excitatory synaptic transmission in perisomatic inhibitory cells of the basal amygdala.  
Veres JM, Fekete Z, Müller K, Andrási T, Rovira-Esteban L, Barabas B, Papp OI, Hajos N  
Frontiers in cellular neuroscience (2023) 17: 1120338. . . **IHC; tested species: mouse**
- Apical-basal distribution of different subtypes of spiral ganglion neurons in the cochlea and the changes during aging.  
Wang M, Lin S, Xie R  
PloS one (2023) 18(10): e0292676. . . **IHC; tested species: mouse**
- Calretinin-Expressing Synapses Show Improved Synaptic Efficacy with Reduced Asynchronous Release during High-Rate Activity.  
Zhang C, Wang M, Lin S, Xie R  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2022) 42(13): 2729-2742. . . **IHC; tested species: mouse**
- Increased Susceptibility to Cerebral Microhemorrhages Is Associated With Imaging Signs of Microvascular Degeneration in the Retina in an Insulin-Like Growth Factor 1 Deficient Mouse Model of Accelerated Aging.  
Miller LR, Tarantini S, Nyúl-Tóth Á, Johnston MP, Martin T, Bullen EC, Bickel MA, Sonntag WE, Yabluchanskiy A, Csiszar A, Ungvari ZI, et al.  
Frontiers in aging neuroscience (2022) 14: 788296. . . **IHC; tested species: mouse**
- Biallelic PAX5 mutations cause hypogammaglobulinemia, sensorimotor deficits, and autism spectrum disorder.  
Kaiser FMP, Gruenbacher S, Oyaga MR, Nio E, Jaritz M, Sun Q, van der Zwaag W, Kreidl E, Zopf LM, Dalm VASH, Pel J, et al.  
The Journal of experimental medicine (2022) 219(9): . . . **IHC; tested species: mouse**
- Molecular characteristics and laminar distribution of prefrontal neurons projecting to the mesolimbic system.  
Babiczyk Á, Matyas F  
eLife (2022) 11: . . . **IHC; tested species: mouse**
- W246G Mutant ELOVL4 Impairs Synaptic Plasticity in Parallel and Climbing Fibers and Causes Motor Defects in a Rat Model of SCA34.  
Nagaraja RY, Sherry DM, Fessler JL, Stiles MA, Li F, Multani K, Orock A, Ahmad M, Brush RS, Anderson RE, Agbaga MP, et al.  
Molecular neurobiology (2021) 58(10): 4921-4943. . . **IHC; tested species: rat**
- Total Number and Ratio of GABAergic Neuron Types in the Mouse Lateral and Basal Amygdala.  
Vereczki VK, Müller K, Krizsán É, Máté Z, Fekete Z, Rovira-Esteban L, Veres JM, Erdélyi F, Hajos N  
The Journal of neuroscience : the official journal of the Society for Neuroscience (2021) 41(21): 4575-4595. . . **IHC; tested species: mouse**

Access the online factsheet including applicable protocols at <https://sysy.com/product/214006> 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.