

Calmodulin

Cat.No. 301 003; Polyclonal rabbit antibody, 50 µg specific antibody (lyophilized)

Data Sheet

Reconstitution/ Storage	50 µg specific antibody, lyophilized. Affinity purified with the immunogen. Albumin was added for stabilization. For reconstitution add 50 µl H ₂ O to get a 1mg/ml solution in PBS. Then aliquot and store at -20°C to -80°C until use. For detailed information, see back of the data sheet.
Applications	WB: 1 : 1000 (AP staining) IP: not recommended ICC: 1 : 500 IHC: not tested yet IHC-P/FFPE: not tested yet
Immunogen	Synthetic peptide corresponding to AA 140 to 149 from rat Calmodulin (UniProt Id: P62161)
Reactivity	Reacts with: human (P62158), rat (P62161), mouse (P62204). Other species not tested yet.
Specificity	Specific for calmodulin.
Matching control	301-0P

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

Access the online factsheet including applicable protocols at <https://susy.com/product/301003> or scan the QR-code.



Background

Calmodulin (CaM) is an ubiquitously expressed 17 kDa protein which mediates many essential Ca-dependent physiological processes. For instance, in neurons it is involved in the regulation of synaptic transmission. Calmodulin belongs to a family of structurally homologous Ca-binding proteins, e.g. troponin C, parvalbumin and S100.

Selected References for 301 003

Interactome Analysis Reveals Regulator of G Protein Signaling 14 (RGS14) is a Novel Calcium/Calmodulin (Ca²⁺/CaM) and CaM Kinase II (CaMKII) Binding Partner.

Evans PR, Gerber KJ, Dammer EB, Duong DM, Goswami D, Lustberg DJ, Zou J, Yang JJ, Dudek SM, Griffin PR, Seyfried NT, et al. Journal of proteome research (2018) 174: 1700-1711. . **IHC; tested species: mouse**

Molecular moieties masking Ca²⁺-dependent facilitation of voltage-gated Cav2.2 Ca²⁺ channels.

Thomas JR, Hagen J, Soh D, Lee A

The Journal of general physiology (2018) 1501: 83-94. . **WB; tested species: human**

Calmodulin bidirectionally regulates evoked and spontaneous neurotransmitter release at retinal ribbon synapses.

Liang CQ, Zhang G, Zhang L, Chen SY, Wang JN, Zhang TT, Singer JH, Ke JB

eNeuro (2020) : . . **IHC; tested species: mouse**

Selected General References

Calcium-dependent folding of single calmodulin molecules.

Stigler J, Rief M

Proceedings of the National Academy of Sciences of the United States of America (2012) 10944: 17814-9. .

Calmodulin suppresses synaptotagmin-2 transcription in cortical neurons.

Pang ZP, Xu W, Cao P, Südhof TC

The Journal of biological chemistry (2010) 28544: 33930-9. .

Calcium-calmodulin signalling pathway up-regulates glutamatergic synaptic function in non-pyramidal, fast spiking rat hippocampal CA1 neurons.

Wang JH, Kelly P

The Journal of physiology (2001) 533Pt 2: 407-22. .

Monoclonal antibody to calmodulin: development, characterization, and comparison with polyclonal anti-calmodulin antibodies.

Sacks DB, Porter SE, Ladenson JH, McDonald JM

Analytical biochemistry (1991) 1942: 369-77. .

Calcium/calmodulin-dependent protein kinase II.

Colbran RJ, Schworer CM, Hashimoto Y, Fong YL, Rich DP, Smith MK, Soderling TR

The Biochemical journal (1989) 2582: 313-25. .

Calcium/calmodulin-dependent phosphorylation of vimentin in rat sertoli cells.

Spruill WA, Zysk JR, Tres LL, Kierszenbaum AL

Proceedings of the National Academy of Sciences of the United States of America (1983) 803: 760-4. .

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 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.