SYSY Antibodies

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PCP4

Cat.No. 480 004; 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**: not recommended **IP**: not tested yet **ICC**: 1 : 500 **IHC**: 1 : 500 **IHC-P (FFPE)**: 1 : 500
Immunogen	full length human recombinant PCP4 (UniProt Id: P48539)
Reactivity	Reacts with: mouse (P63054), rat (P63055), monkey. Other species not tested yet. Predicted to cross-react with human (P48539) due to high sequence homology.

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

Background

Purkinje-**c**ell **p**rotein 4 (PCP4) also known as PEP-19, is a small calmodulin (CaM)-binding protein that exhibits high expression levels in cerebellar Purkinje cells. PCP4 also occurs in neocortical structures, especially in the deep layers, and in other cortical structures and parts of the hippocampus. Furthermore, the olfactory bulb and caudate putamen show high PCP4 levels (1). PCP4 selectively binds to the C-domain of CaM via an IQ motif (2) and modulates CaM signaling by acting at the level of Ca^{2+} binding to CaM (3).

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

Selected References for 480 004

Functional transition of CA2 pyramidal neurons along the proximodistal axis determines resonance frequency preference.
Kruse P, Eichler A, Brockmeyer K, Lenz M
Scientific reports (2026) 161: 7172. . **ICC; tested species: mouse**

Defining hippocampal area CA2 in the fox (Vulpes vulpes) brain.
Dudek SM, Phoenix AN, Scappini E, Shepeleva DV, Herbeck YE, Trut LN, Farris S, Kukekova AV
Hippocampus (2023) 336: 700-711. . **IHC**

Reduced SuM Activation Accompanies Impaired Social Novelty Recognition in Mouse Models of Neurodevelopmental Disorders.
Maejima R, Ito Y, Motoyama J
eNeuro (2026) 137: . . **IHC; tested species: mouse**

Hippocampal CA2 modulates trace fear conditioning through circuit-specific tuning of CA1 activity.
Bassett TE, Zhang H, Petrovic Z, Nakamoto C, Cicvaric A, Wood EM, Rudolph S, Tanimura A, Radulovic J
Progress in neurobiology (2026) 267: 102970. . **IHC; tested species: mouse**

MCU expression in hippocampal CA2 neurons modulates dendritic mitochondrial morphology and synaptic plasticity.
Pannoni KE, Fischer QS, Tarannum R, Cawley ML, Alsalman MM, Acosta N, Ezigbo C, Gil DV, Campbell LA, Farris S
Scientific reports (2025) 151: 4540. . **IHC; tested species: mouse**

Hippocampal cell- and circuit-specific differences in mitochondrial form and function.
Alsalman M, Turner L, Pannoni K, Tarannum R, Desai R, Swanger SA, Farris S
bioRxiv : the preprint server for biology (2025) : . . **IHC; tested species: mouse**

Identification of hippocampal area CA2 in hamster and vole brain.
Siegler PN, Shaughnessy EK, Horman B, Vierling TT, King DH, Patisaul HB, Huhman KL, Alexander GM, Dudek SM
The Journal of comparative neurology (2024) 5323: e25603. . **IHC; tested species: mouse**

INSIHGT: an accessible multi-scale, multi-modal 3D spatial biology platform.
Yau CN, Hung JTS, Campbell RAA, Wong TCY, Huang B, Wong BTY, Chow NKN, Zhang L, Tsoi EPL, Tan Y, Li JJX, et al.
Nature communications (2024) 151: 10888. . **IHC; tested species: mouse**

Selected General References

Distribution of PCP4 protein in the forebrain of adult mice.
Renelt M et al. Acta Histochem (2014) PubMed:24954028

PEP-19 modulates calcium binding to calmodulin by electrostatic steering.
Wang X et al. Nat Commun (2016) PubMed:27876793

PEP-19, an intrinsically disordered regulator of calmodulin signaling.
Kleerekoper QK et al. J Biol Chem (2009) PubMed:19106096

Access the online factsheet including applicable protocols at https://sysy.com/product/480004 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.