

Product Information

Anti-Calbindin-D-28K antibody, Mouse monoclonal
clone CB-955, purified from hybridoma cell culture

Catalog Number **SAB4200543**

Product Description

Anti-Calbindin-D-28K antibody, Mouse monoclonal (mouse IgG1 isotype) is derived from the hybridoma CB-955 produced by the fusion of mouse myeloma cells and splenocytes from BALB/c mice immunized with a purified bovine kidney calbindin-D-28K. The isotype is determined by ELISA using Mouse Monoclonal Antibody Isotyping Reagents, Catalog Number ISO2. The antibody is purified from culture supernatant of hybridoma cells grown in a bioreactor.

Anti-Calbindin-D-28K antibody, Mouse monoclonal recognizes human bovine, goat, sheep, porcine, rabbit, dog, cat, guinea-pig, rat and mouse calbindin-D-28K. A weaker reactivity is observed with chicken calbindin-D-28K. The antibody does not react with other members of the EF-hand family such as calbindin-D-9K, calretinin, myosin light chain, parvalbumin, S-100a, S-100b, S100A2 (S100L) and S100A6 (calcyclin). The product may be used immunoblotting (~28 kDa), ELISA and immunohistochemistry (alcohol-, formalin-, and methacarn-fixed paraffin-embedded, and frozen tissue sections).

The vitamin D-dependent Ca^{2+} -binding proteins, named calbindins (CaBPs), are expressed in cells that are challenged by a high Ca^{2+} -influx such as in brain, bone, teeth, inner ear, placenta, mammary gland, kidney and intestine. In these tissues, CaBPs (i.e., CaBP9K and CaBP-28K) are widely regarded as key components in cellular Ca^{2+} handling.¹ A member of this family, Calbindin-D(28K) is a Ca^{2+} -binding protein that appears to fulfill three functions: First, it functions as a mobile or partly immobilized Ca^{2+} -buffer with medium kinetics and affinity buffer function. Second, it functions in buffered Ca^{2+} -diffusion-transport function. Finally, it interacts with target proteins in its apo- and Ca^{2+} -loaded form-sensor-like function.² Interestingly, over-expression of Calbindin-D(28K) induces neurite outgrowth in dopaminergic neuronal cells. It appears that this outgrowth provides protection for dopamine neurons from neurodegeneration. It would thus provide a potential strategy in the treatment of Parkinson's diseases.³

Furthermore, Calbindin-D(28K)-containing neurons were found to be virtually resistant to the process of tangle formation, a hallmark of Alzheimer's disease. It was suggested that the loss of calcium buffering capacity in these neurons and the resultant pathological increase in intracellular calcium are permissive to tangle formation and degeneration.⁴

Reagent

Supplied as a solution in 0.01 M phosphate buffered saline, pH 7.4, containing 15 mM sodium azide.

Antibody Concentration: ~ 1.0 mg/mL

Precautions and Disclaimer

This product is for R&D use only, not for drug, household, or other uses. Please consult the Safety Data Sheet for information regarding hazards and safe handling practices.

Storage/Stability

For extended storage, freeze at -20°C in working aliquots. Repeated freezing and thawing, or storage in "frost-free" freezers, is not recommended. If slight turbidity occurs upon prolonged storage, clarify the solution by centrifugation before use. Working dilution samples should be discarded if not used within 12 hours.

Product Profile

Immunoblotting: a working concentration of 2-4 $\mu\text{g/mL}$ is recommended using MDBK extract.

Immunohistochemistry: a working concentration of 10-20 $\mu\text{g/mL}$ is recommended using formalin-fixed, paraffin embedded rat cerebellum.

Note: In order to obtain the best results using various techniques and preparations, we recommend determining optimal working dilutions by titration.

References

1. Lambers, T.T., et al., *EMBO J.*, **25**, 2978–2988 (2006).

2. Schmidt, H., *Front. Mol. Neurosci.* **5**, 25 (2012).
3. Yuan, H.H., *Mol. Neurobiol.*, **47**, 117-22 (2013).

4. Riascos, D., *Acta Neuropathol.*, **122**, 565-576 (2011).

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