

Calbindin D28K (D-4): sc-365360

BACKGROUND

The family of EF-hand type Ca²⁺-binding proteins includes Calbindin D28K, Calbindin D9K, S-100 α and β , Calgranulin A (also designated MRP8), Calgranulin B (also designated MRP14), Calgranulin C and the Parvalbumin family members, including Parvalbumin α and Parvalbumin β (also designated oncomodulin). Calbindin D28K, also known as calbindin, CALB1, D-28K or vitamin D-dependent calcium-binding protein, is a 261 amino acid protein with six EF-hand domains, four of which are active calcium-binding domains. Expressed in brain, ovary, uterus, testis, pancreas, liver, kidney and intestine, Calbindin D28K acts as a calcium-buffering agent and alters the activity of the plasma membrane ATPase. In neuronal cells, Calbindin D28K modulates calcium channel activity, calcium transients and intrinsic neuronal firing activity. Also, Calbindin D28K has been implicated to play a role in apoptosis and microtubule function.

REFERENCES

1. Parmentier, M., et al. 1989. The human Calbindin 27-kDa gene: structural organization of the 5' and 3' regions, chromosomal assignment, and restriction fragment length polymorphism. *Genomics* 4: 309-319.
2. Parmentier, M., et al. 1991. The human Calbindin D28k (CALB1) and calretinin (CALB2) genes are located at 8q21.3-q22.1 and 16q22-q23, respectively, suggesting a common duplication with the carbonic anhydrase isozyme loci. *Cytogenet. Cell Genet.* 57: 41-43.
3. Yap, K.L., et al. 1999. Diversity of conformational states and changes within the EF-hand protein superfamily. *Proteins* 37: 499-507.

CHROMOSOMAL LOCATION

Genetic locus: CALB1 (human) mapping to 8q21.3; Calb1 (mouse) mapping to 4 A2.

SOURCE

Calbindin D28K (D-4) is a mouse monoclonal antibody raised against amino acids 35-84 mapping near the N-terminus of Calbindin D28K of human origin.

PRODUCT

Each vial contains 200 μ g IgG₁ kappa light chain in 1.0 ml of PBS with < 0.1% sodium azide and 0.1% gelatin.

Calbindin D28K (D-4) is available conjugated to agarose (sc-365360 AC), 500 μ g/0.25 ml agarose in 1 ml, for IP; to HRP (sc-365360 HRP), 200 μ g/ml, for WB, IHC(P) and ELISA; to either phycoerythrin (sc-365360 PE), fluorescein (sc-365360 FITC), Alexa Fluor[®] 488 (sc-365360 AF488), Alexa Fluor[®] 546 (sc-365360 AF546), Alexa Fluor[®] 594 (sc-365360 AF594) or Alexa Fluor[®] 647 (sc-365360 AF647), 200 μ g/ml, for WB (RGB), IF, IHC(P) and FCM; and to either Alexa Fluor[®] 680 (sc-365360 AF680) or Alexa Fluor[®] 790 (sc-365360 AF790), 200 μ g/ml, for Near-Infrared (NIR) WB, IF and FCM.

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STORAGE

Store at 4° C, ****DO NOT FREEZE****. Stable for one year from the date of shipment. Non-hazardous. No MSDS required.

APPLICATIONS

Calbindin D28K (D-4) is recommended for detection of Calbindin D28K of mouse, rat and human origin by Western Blotting (starting dilution 1:100, dilution range 1:100-1:1000), immunoprecipitation [1-2 μ g per 100-500 μ g of total protein (1 ml of cell lysate)], immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500), immunohistochemistry (including paraffin-embedded sections) (starting dilution 1:50, dilution range 1:50-1:500) and solid phase ELISA (starting dilution 1:30, dilution range 1:30-1:3000).

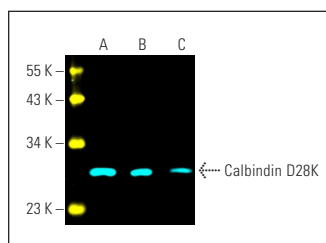
Calbindin D28K (D-4) is also recommended for detection of Calbindin D28K in additional species, including bovine and porcine.

Suitable for use as control antibody for Calbindin D28K siRNA (h): sc-29878, Calbindin D28K siRNA (m): sc-29879, Calbindin D28K shRNA Plasmid (h): sc-29878-SH, Calbindin D28K shRNA Plasmid (m): sc-29879-SH, Calbindin D28K shRNA (h) Lentiviral Particles: sc-29878-V and Calbindin D28K shRNA (m) Lentiviral Particles: sc-29879-V.

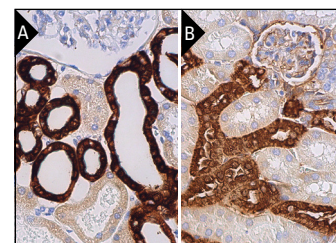
Molecular Weight of Calbindin D28K: 28 kDa.

Positive Controls: mouse brain extract: sc-2253, human kidney extract: sc-363764 or rat brain extract: sc-2392.

DATA



Calbindin D28K (D-4) Alexa Fluor[®] 647: sc-365360 AF647. Direct fluorescent western blot analysis of Calbindin D28K expression in mouse brain (A), human kidney (B) and rat brain (C) tissue extracts. Blocked with UltraCruz[®] Blocking Reagent: sc-516214. Cruz Marker[™] Molecular Weight Standards detected with Cruz Marker[™] MW Tag-Alexa Fluor[®] 488: sc-516790.



Calbindin D28K (D-4): sc-365360. Immunoperoxidase staining of formalin fixed, paraffin-embedded human kidney tissue showing cytoplasmic staining of cells in tubules (A). Immunoperoxidase staining of formalin fixed, paraffin-embedded mouse kidney tissue showing nuclear and cytoplasmic staining of cells in tubules (B).

SELECT PRODUCT CITATIONS

1. Hajibeigi, A., et al. 2015. Identification of novel regulatory NFAT and TFII-I binding elements in the Calbindin-D28K promoter in response to serum deprivation. *Biochem. Biophys. Res. Commun.* 465: 414-420.
2. Li, X., et al. 2022. Targeting long noncoding RNA-AQP4-AS1 for the treatment of retinal neurovascular dysfunction in diabetes mellitus. *EBioMedicine* 77: 103857.
3. Chen, F.F., et al. 2023. Renal NLRP3 inflammasome activation is associated with disease activity in lupus nephritis. *Clin. Immunol.* 247: 109221.

RESEARCH USE

For research use only, not for use in diagnostic procedures.