

Calbindin D28K siRNA (m): sc-29879

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.
4. Lutz, W., et al. 2003. Calbindin D28K interacts with Ran-binding protein M: identification of interacting domains by NMR spectroscopy. *Biochem. Biophys. Res. Commun.* 303: 1186-1192.
5. Luu, K.C., et al. 2004. Endometrial calbindins are critical for embryo implantation: evidence from *in vivo* use of morpholino antisense oligonucleotides. *Proc. Natl. Acad. Sci. USA* 101: 8028-8033.
6. Cedervall, T., et al. 2005. Calbindin D28K EF-hand ligand binding and oligomerization: four high-affinity sites—three modes of action. *Biochemistry* 44: 13522-13532.

CHROMOSOMAL LOCATION

Genetic locus: Calb1 (mouse) mapping to 4 A2.

PRODUCT

Calbindin D28K siRNA (m) is a pool of 3 target-specific 19-25 nt siRNAs designed to knock down gene expression. Each vial contains 3.3 nmol of lyophilized siRNA, sufficient for a 10 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Calbindin D28K shRNA Plasmid (m): sc-29879-SH and Calbindin D28K shRNA (m) Lentiviral Particles: sc-29879-V as alternate gene silencing products.

For independent verification of Calbindin D28K (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-29879A, sc-29879B and sc-29879C.

STORAGE AND RESUSPENSION

Store lyophilized siRNA duplex at -20° C with desiccant. Stable for at least one year from the date of shipment. Once resuspended, store at -20° C, avoid contact with RNAses and repeated freeze thaw cycles.

Resuspend lyophilized siRNA duplex in 330 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Calbindin D28K siRNA (m) is recommended for the inhibition of Calbindin D28K expression in mouse cells.

SUPPORT REAGENTS

For optimal siRNA transfection efficiency, Santa Cruz Biotechnology's siRNA Transfection Reagent: sc-29528 (0.3 ml), siRNA Transfection Medium: sc-36868 (20 ml) and siRNA Dilution Buffer: sc-29527 (1.5 ml) are recommended. Control siRNAs or Fluorescein Conjugated Control siRNAs are available as 10 μ M in 66 μ l. Each contain a scrambled sequence that will not lead to the specific degradation of any known cellular mRNA. Fluorescein Conjugated Control siRNAs include: sc-36869, sc-44239, sc-44240 and sc-44241. Control siRNAs include: sc-37007, sc-44230, sc-44231, sc-44232, sc-44233, sc-44234, sc-44235, sc-44236, sc-44237 and sc-44238.

GENE EXPRESSION MONITORING

Calbindin D28K (D-4): sc-365360 is recommended as a control antibody for monitoring of Calbindin D28K gene expression knockdown by Western Blotting (starting dilution 1:200, dilution range 1:100-1:1000) or immunofluorescence (starting dilution 1:50, dilution range 1:50-1:500).

To ensure optimal results, the following support reagents are recommended: 1) Western Blotting: use m-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz Marker[™] Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ BP-PE: sc-516141 (dilution range: 1:50-1:200) with UltraCruz[®] Mounting Medium: sc-24941 or UltraCruz[®] Hard-set Mounting Medium: sc-359850.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Calbindin D28K gene expression knockdown using RT-PCR Primer: Calbindin D28K (m)-PR: sc-29879-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.