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SANTA CRUZ BIOTECHNOLOGY, INC.

PMCA2 siRNA (m): sc-42599

BACKGROUND

Plasma membrane-type Ca^{2+}-ATPases (PMCAs) mediate the export of bivalent calcium ions from eukaryotic cells. As members of the P class of ion-motive ATPases, PMCAs are a functionally diverse group of proteins that are derived from alternatively spliced transcripts originating from four distinct genes, PMCA1, 2, 3 and 4. The expression of different PMCA isoforms and splice variants is regulated in a developmental, tissue- and cell type-specific manner, and with respect to the physiological needs of specific cell and tissue types. Spatial and temporal rates of resting intracellular Ca^{2+} concentrations and Ca^{2+} signaling in eukaryotic cells are dependent on the array of PMCA isoforms that are expressed in concert with the rate of Ca^{2+} export. The human PMCA2 gene is located on chromosome 3 and antibodies directed against PMCA2 detect three proteins in brain and heart. Homozygous null mutations in the mouse gene result in deafwaddler mice, which are characterized by having a hesitant, wobbly gait, displaying head bobbing and are deaf.

REFERENCES

1. Olson, S., et al. 1991. Localization of two genes encoding plasma membrane Ca^{2+}-transporting ATPases to human chromosomes 1q25-32 and 12q21-23. Genomics 9: 629-641.
2. Brandt, P., et al. 1992. Determination of the nucleotide sequence and chromosomal localization of the ATP2B2 gene encoding human Ca^{2+}-pumping ATPase isoform PMCA2. Genomics 14: 484-487.
3. Fresu, L., et al. 1999. Plasma membrane calcium ATPase isoforms in astrocytes. Glia 28: 150-155.
4. Lehotsky, J., et al. 1999. Distribution of plasma membrane Ca^{2+} pump (PMCA) isoforms in the gerbil brain: effect of ischemia-reperfusion injury. Neurochem. Int. 35: 221-227.
5. Garcia, M.L., et al. 1999. Plasma membrane calcium ATPases as critical regulators of calcium homeostasis during neuronal cell function. Front. Biosci. 4: D869-D882.
6. Strehler, E.E., et al. 2001. Role of alternative splicing in generating isoform diversity among plasma membrane calcium pumps. Physiol. Rev. 81: 21-50.

CHROMOSOMAL LOCATION

Genetic locus: Atp2b2 (mouse) mapping to 6 E3.

PRODUCT

PMCA2 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see PMCA2 shRNA Plasmid (m): sc-42599-SH and PMCA2 shRNA (m) Lentiviral Particles: sc-42599-V as alternate gene silencing products.

For independent verification of PMCA2 (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-42599A, sc-42599B and sc-42599C.

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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

PMCA2 siRNA (m) is recommended for the inhibition of PMCA2 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 µM in 66 µl. 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor PMCA2 gene expression knockdown using RT-PCR Primer: PMCA2 (m)-PR: sc-42599-PR (20 µl). 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.