SANTA CRUZ BIOTECHNOLOGY, INC.

CA X siRNA (m): sc-62041

BACKGROUND

Carbonic anhydrases (CAs) are members of a large family of zinc metalloenzymes responsible for catalyzing the reversible hydration of carbon dioxide. CAs show extensive diversity in their distribution and subcellular localization. They are involved in a variety of biological processes, including calcification, bone resorption, respiration, acid-base balance and the formation of aqueous humor, saliva, gastric juice and cerebrospinal fluid. CA X, also referred to as carbonic anhydrase-related protein X (CA-RP X) or cerebral protein 15, is a member of the carbonic anhydrase family that lacks two of the three Zn-binding motifs essential for carbonic anhydrase activity. For this reason, CA X does not exhibit catalytic activity. It is expressed primarily in brain and kidney and may play a role in brain development.

REFERENCES

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2. Okamoto, N., et al. 2001. cDNA sequence of human carbonic anhydrase-related protein, CA-RP X: mRNA expressions of CA-RP X and XI in human brain. Biochim. Biophys. Acta 1518: 311-316.
3. Taniuchi, K., et al. 2002. Developmental expression of carbonic anhydrase-related proteins VIII, X, and XI in the human brain. Neuroscience 112: 93-99.
4. Taniuchi, K., et al. 2003. cDNA cloning and developmental expression of murine carbonic anhydrase-related proteins VIII, X, and XI. Brain Res. Mol. Brain Res. 109: 207-215.
5. Gulcin, I., et al. 2004. *In vitro* and *in vivo* effects of dantrolene on carbonic anhydrase enzyme activities. Biol. Pharm. Bull. 27: 613-616.
6. Pastorekova, S., et al. 2004. Carbonic anhydrases: current state of the art, therapeutic applications and future prospects. J. Enzyme Inhib. Med. Chem. 19: 199-229.
7. Vullo, D., et al. 2004. Designing of novel carbonic anhydrase inhibitors and activators. Curr. Med. Chem. Cardiovasc. Hematol. Agents 2: 51-70.
8. Ohradanova, A., et al. 2007. Reconstitution of carbonic anhydrase activity of the cell surface binding protein of vaccinia virus. Biochem. J. 407: 61-67.

CHROMOSOMAL LOCATION

Genetic locus: Car10 (mouse) mapping to 11 D.

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.

PRODUCT

CA X 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 CA X shRNA Plasmid (m): sc-62041-SH and CA X shRNA (m) Lentiviral Particles: sc-62041-V as alternate gene silencing products.

For independent verification of CA X (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-62041A, sc-62041B and sc-62041C.

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

CA X siRNA (m) is recommended for the inhibition of CA X 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 CA X gene expression knockdown using RT-PCR Primer: CA X (m)-PR: sc-62041-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.