SANTA CRUZ BIOTECHNOLOGY, INC.

CA VII siRNA (m): sc-62037

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 VII, also known as carbonate dehydratase VII, is a highly conserved mammlian carbonic anhydrase. It localizes to the cytoplasm and is ubiquitiously expressed at low levels, but is present at significant levels in brain and salivary glands. CA VII may influence GABAergic excitation in neurons and contribute to the triggering of convulsions common to neurological disorders. Due to the high expression level of CA VII in brain, it may be useful in the development of pharmacologic agents for managing epilepsy and Alzheimer's disease.

REFERENCES

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3. Halmi, P., et al. 2005. Expression of carbonic anhydrases II, IV, VII, VIII and XII in rat brain after kainic acid induced status epilepticus. Neurochem. Int. 48: 24-30.
4. Rivera, C., et al. 2005. Two developmental switches in GABAergic signalling: the K^+-Cl^- cotransporter KCC2 and carbonic anhydrase CAVII. J. Physiol. 562: 27-36.
5. Vullo, D., et al. 2005. Carbonic anhydrase inhibitors. Inhibition of the human cytosolic isozyme VII with aromatic and heterocyclic sulfonamides. Bioorg. Med. Chem. Lett. 15: 971-976.
6. Supuran, C.T. 2007. Carbonic anhydrases as drug targets—an overview. Curr. Top. Med. Chem. 7: 825-833.
7. Temperini, C., et al. 2007. Carbonic anhydrase activators: L-Adrenaline plugs the active site entrance of isozyme II, activating better isoforms I, IV, VA, VII, and XIV. Bioorg. Med. Chem. Lett. 17: 628-635.
8. Vullo, D., et al. 2007. Carbonic anhydrase activators: activation of the human isoforms VII (cytosolic) and XIV (transmembrane) with amino acids and amines. Bioorg. Med. Chem. Lett. 17: 4107-4112.
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CHROMOSOMAL LOCATION

Genetic locus: Car7 (mouse) mapping to 8 D3.

PROTOCOLS

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

PRODUCT

CA VII 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 VII shRNA Plasmid (m): sc-62037-SH and CA VII shRNA (m) Lentiviral Particles: sc-62037-V as alternate gene silencing products.

For independent verification of CA VII (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-62037A, sc-62037B and sc-62037C.

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 VII siRNA (m) is recommended for the inhibition of CA VII 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 VII gene expression knockdown using RT-PCR Primer: CA VII (m)-PR: sc-62037-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.