SANTA CRUZ BIOTECHNOLOGY, INC.

CA XV siRNA (m): sc-62047

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 XV, also referred to as Carbonate dehydratase XV or Car15, is a glycosylated glycosylphosphatidylinositol-anchored membrane protein expressed ubiquitously at low levels. CA XV is predomimantly expressed in kidney, brain and testis. In humans and chimpanzees, it is a non-processed pseudogene. In mouse, CA XV exhibits highest homology with family member CA IV. CA XV contains three glycosylation sites at asparagine residues 189, 201 and 210.

REFERENCES

1. Hilvo, M., et al. 2005. Characterization of CA XV, a new GPI-anchored form of carbonic anhydrase. Biochem. J. 392: 83-92.
2. Almajan, G.L., et al. 2005. Carbonic anhydrase inhibitors. Inhibition of the cytosolic and tumor-associated carbonic anhydrase isozymes I, II, and IX with a series of 1,3,4-thiadiazole- and 1,2,4-triazole-thiols. Bioorg. Med. Chem. Lett. 15: 2347-2352.
3. Shah, G.N., et al. 2005. Carbonic anhydrase IV and XIV knockout mice: roles of the respective carbonic anhydrases in buffering the extracellular space in brain. Proc. Natl. Acad. Sci. USA 102: 16771-16776.
4. Thiry, A., et al. 2006. Targeting tumor-associated carbonic anhydrase IX in cancer therapy. Trends Pharmacol. Sci. 27: 566-573.
5. Pan, P.W., et al. 2007. A systematic quantification of carbonic anhydrase transcripts in the mouse digestive system. BMC Mol. Biol. 8: 22.
6. Supuran, C.T. 2007. Carbonic anhydrases as drug targets—an overview. Curr. Top. Med. Chem. 7: 825-833.
7. Supuran, C.T., et al. 2007. Carbonic anhydrases as targets for medicinal chemistry. Bioorg. Med. Chem. 15: 4336-4350.
8. Hilvo, M., et al. 2007. Characterization and inhibition of the recently discovered carbonic anhydrase isoforms CA XIII, XIV and XV. Curr. Top. Med. Chem. 7: 893-899.
9. Riihonen, R., et al. 2007. Membrane-bound carbonic anhydrases in osteoclasts. Bone 40: 1021-1031.

CHROMOSOMAL LOCATION

Genetic locus: Car15 (mouse) mapping to 16 A3.

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 XV 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 XV shRNA Plasmid (m): sc-62047-SH and CA XV shRNA (m) Lentiviral Particles: sc-62047-V as alternate gene silencing products.

For independent verification of CA XV (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-62047A, sc-62047B and sc-62047C.

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 XV siRNA (m) is recommended for the inhibition of CA XV 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 XV gene expression knockdown using RT-PCR Primer: CA XV (m)-PR: sc-62047-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-7\2° C.