SANTA CRUZ BIOTECHNOLOGY, INC.

CA VIII siRNA (m): sc-62039

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 VIII, also referred to as carbonic anhydrase-related protein VIII (CA-RP VIII), is a member of the carbonic anhydrase family that lacks the Zn-binding motif essential for carbonic anhydrase activity. For this reason, CA VIII does not exhibit catalytic activity but instead may be important in synaptic vesicle formation and transport. In addition, CA VIII may be involved in the invasiveness of non-small cell lung carcinomas and may also play a role in the growth of colon cancer cells.

REFERENCES

1. Bataller, L., et al. 2004. Carbonic anhydrase-related protein VIII: autoantigen in paraneoplastic cerebellar degeneration. Ann. Neurol. 56: 575-579.
2. Morimoto, K., et al. 2005. Overexpression of carbonic anhydrase-related protein XI promotes proliferation and invasion of gastrointestinal stromal tumors. Virchows Arch. 447: 66-73.
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. Jiao, Y., et al. 2005. Carbonic anhydrase-related protein VIII deficiency is associated with a distinctive lifelong gait disorder in waddles mice. Genetics 171: 1239-1246.
5. Ishihara, T., et al. 2006. Carbonic anhydrase-related protein VIII increases invasiveness of non-small cell lung adenocarcinoma. Virchows Arch. 448: 830-837.
6. Yan, J., et al. 2007. Effects of carbonic anhydrase VIII deficiency on cerebellar gene expression profiles in the wdl mouse. Neurosci. Lett. 413: 196-201.
7. Nishikata, M., et al. 2007. Carbonic anhydrase-related protein VIII promotes colon cancer cell growth. Mol. Carcinog. 46: 208-214.
8. Supuran, C.T. 2007. Carbonic anhydrases as drug targets—an overview. Curr. Top. Med. Chem. 7: 825-833.

CHROMOSOMAL LOCATION

Genetic locus: Car8 (mouse) mapping to 4 A1.

PRODUCT

CA VIII 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 VIII shRNA Plasmid (m): sc-62039-SH and CA VIII shRNA (m) Lentiviral Particles: sc-62039-V as alternate gene silencing products.

For independent verification of CA VIII (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-62039A, sc-62039B and sc-62039C.

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 VIII siRNA (m) is recommended for the inhibition of CA VIII 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.

GENE EXPRESSION MONITORING

CA VIII (E-4): sc-166626 is recommended as a control antibody for monitoring of CA VIII 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 CA VIII gene expression knockdown using RT-PCR Primer: CA VIII (m)-PR: sc-62039-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.