

AQP9 siRNA (h): sc-42371

BACKGROUND

Human AQP9 (aquaporin 9) is a 295 amino acid protein that allows passage of a wide variety of noncharged solutes and stimulates osmotic water permeability. Aquaporins (AQPs) are a large family of integral membrane water transport channel proteins that facilitate the transport of water through the cell membrane. This function is conserved in animals, plants and bacteria. Many isoforms of aquaporin have been identified in mammals, designated AQP0 through AQP10. Aquaporins are widely distributed and it is not uncommon for more than one type of AQP to be present in the same cell. Although most aquaporins are only permeable to water, AQP3, AQP7, AQP9 and one of the two AQP10 transcripts are also permeable to urea and glycerol. Aquaporins are involved in renal water absorption, generation of pulmonary secretions, lacrimation, and the secretion and reabsorption of cerebrospinal fluid and aqueous humor.

REFERENCES

1. Ma, T., et al. 1996. cDNA cloning and gene structure of a novel water channel expressed exclusively in human kidney: evidence for a gene cluster of aquaporins at chromosome locus 12q13. *Genomics* 35: 543-550.
2. Echevarria, M., et al. 1998. Aquaporins. *J. Physiol. Biochem.* 54: 107-118.
3. Ishibashi, K., et al. 1998. Cloning and functional expression of a new aquaporin (AQP9) abundantly expressed in the peripheral leukocytes permeable to water and urea, but not to glycerol. *Biochem. Biophys. Res. Commun.* 244: 268-274.
4. Beitz, E., et al. 1999. The mammalian aquaporin water channel family: a promising new drug target. *Curr. Med. Chem.* 6: 457-467.

CHROMOSOMAL LOCATION

Genetic locus: AQP9 (human) mapping to 15q21.3.

PRODUCT

AQP9 siRNA (h) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see AQP9 shRNA Plasmid (h): sc-42371-SH and AQP9 shRNA (h) Lentiviral Particles: sc-42371-V as alternate gene silencing products.

For independent verification of AQP9 (h) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-42371A, sc-42371B and sc-42371C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

AQP9 siRNA (h) is recommended for the inhibition of AQP9 expression in human 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 μ M in 66 μ l. 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

AQP9 (G-3): sc-74409 is recommended as a control antibody for monitoring of AQP9 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-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 AQP9 gene expression knockdown using RT-PCR Primer: AQP9 (h)-PR: sc-42371-PR (20 μ l, 526 bp). Annealing temperature for the primers should be 55-60 $^{\circ}$ C and the extension temperature should be 68-72 $^{\circ}$ C.

SELECT PRODUCT CITATIONS

1. Chen, Q., et al. 2016. Effect of AQP9 expression in androgen-independent prostate cancer cell PC3. *Int. J. Mol. Sci.* 17: 738.
2. Choi, Y.S., et al. 2019. Potential roles of aquaporin 9 in the pathogenesis of endometriosis. *Mol. Hum. Reprod.* 25: 373-384.
3. Abdalla, Y., et al. 2021. Effectiveness of porous silicon nanoparticle treatment at inhibiting the migration of a heterogeneous glioma cell population. *J. Nanobiotechnology* 19: 60.

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.