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PCSK9 siRNA (h): sc-45482

BACKGROUND

Proprotein convertase subtilisin/kexin type 9 (PCSK9), also known as NARC-1, is a 692 amino acid protein that belongs to the peptidase S8 family and contains one peptidase S8 domain. Important in the regulation of plasma cholesterol homeostasis, PCSK9 binds to low-density lipoprotein receptor family members LDLR, very low-density lipoprotein receptor (VLDLR) and apolipoprotein receptor 2 (ApoER2) and promotes their degradation in intracellular acidic compartments. PCSK9 also plays a role in neuronal differentiation and apoptosis. PCSK9 is expressed in Schwann cells, neuro-epithelioma, colon carcinoma, and hepatic and pancreatic cell lines. PCSK9 levels in the brain are highest in the cerebellum during perinatal development, with ischemia causing increased levels in the adult brain. Defects in the gene encoding this protein causes the autosomal dominant disorder familial hypercholesterolemia 3 (HCHOLA3).

REFERENCES

1. Abifadel, M., et al. 2003. Mutations in PCSK9 cause autosomal dominant hypercholesterolemia. *Nat. Genet.* 34: 154-156.
2. Naureckiene, S., et al. 2003. Functional characterization of NARC 1, a novel proteinase related to proteinase K. *Arch. Biochem. Biophys.* 420: 55-67.
3. Rashid, S., et al. 2005. Decreased plasma cholesterol and hypersensitivity to statins in mice lacking Pcsk9. *Proc. Natl. Acad. Sci. USA* 102: 5374-5379.
4. Poirier, S., et al. 2006. Implication of the proprotein convertase NARC-1/PCSK9 in the development of the nervous system. *J. Neurochem.* 98: 838-850.

CHROMOSOMAL LOCATION

Genetic locus: PCSK9 (human) mapping to 1p32.3.

PRODUCT

PCSK9 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 PCSK9 shRNA Plasmid (h): sc-45482-SH and PCSK9 shRNA (h) Lentiviral Particles: sc-45482-V as alternate gene silencing products.

For independent verification of PCSK9 (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-45482A, sc-45482B and sc-45482C.

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

PCSK9 siRNA (h) is recommended for the inhibition of PCSK9 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

PCSK9 (F-8): sc-515082 is recommended as a control antibody for monitoring of PCSK9 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 Marker[™] 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 PCSK9 gene expression knockdown using RT-PCR Primer: PCSK9 (h)-PR: sc-45482-PR (20 μ l, 512 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Piao, M.X., et al. 2015. PCSK9 regulates apoptosis in human neuroglioma u251 cells via mitochondrial signaling pathways. *Int. J. Clin. Exp. Pathol.* 8: 2787-2794.
2. Tian, X.F., et al. 2016. PACE4 regulates apoptosis in human pancreatic cancer Panc-1 cells via the mitochondrial signaling pathway. *Mol. Med. Rep.* 14: 5205-5210.
3. Xu, X., et al. 2017. PCSK9 regulates apoptosis in human lung adenocarcinoma A549 cells via endoplasmic reticulum stress and mitochondrial signaling pathways. *Exp. Ther. Med.* 13: 1993-1999.
4. Luan, C., et al. 2019. Potentiation of psoriasis-like inflammation by PCSK9. *J. Invest. Dermatol.* 139: 859-867.

RESEARCH USE

For research use only, not for use in diagnostic procedures.