

ADAM33 siRNA (h): sc-41422

BACKGROUND

ADAM33, for a disintegrin and metalloprotease domain 33, is a member of the ADAM protein family. Members of this family are membrane-anchored proteins structurally related to snake venom disintegrins, and have been implicated in a variety of biologic processes involving cell-cell and cell-matrix interactions, including fertilization, muscle development, and neurogenesis. Specifically, ADAM33 is a type I transmembrane protein implicated in asthma and bronchial hyperresponsiveness. Alternative splicing of this gene results in two transcript variants encoding different isoforms. ADAM33 is expressed in the mouse adult brain and could play a role in complex processes that require cell-cell communication. The mouse and human predicted proteins consist of 797 and 813 amino acids, respectively, and they share 70% amino acid sequence identity. The mouse ADAM gene exists at a single gene locus, while the human gene, which maps to human chromosome 20p13, consists of 22 exons.

REFERENCES

1. Van Eerdewegh, P., et al. 2002. Association of the ADAM33 gene with asthma and bronchial hyperresponsiveness. *Nature* 418: 426-430.
2. Shapiro, S.D. and Owen, C.A. 2002. ADAM33 surfaces as an asthma gene. *N. Engl. J. Med.* 347: 936-938.
3. Gunn, T.M., et al. 2002. Identification and preliminary characterization of mouse ADAM33. *BMC Genet.* 3: 2.
4. Yoshinaka, T., et al. 2002. Identification and characterization of novel mouse and human ADAM33s with potential metalloprotease activity. *Gene* 282: 227-236.

CHROMOSOMAL LOCATION

Genetic locus: ADAM33 (human) mapping to 20p13.

PRODUCT

ADAM33 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 ADAM33 shRNA Plasmid (h): sc-41422-SH and ADAM33 shRNA (h) Lentiviral Particles: sc-41422-V as alternate gene silencing products.

For independent verification of ADAM33 (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-41422A, sc-41422B and sc-41422C.

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

ADAM33 siRNA (h) is recommended for the inhibition of ADAM33 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

ADAM33 (A-3): sc-514055 is recommended as a control antibody for monitoring of ADAM33 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 ADAM33 gene expression knockdown using RT-PCR Primer: ADAM33 (h)-PR: sc-41422-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Pei, Q.M., et al. 2016. Upregulation of a disintegrin and metalloproteinase-33 by VEGF in human airway smooth muscle cells: implications for asthma. *Cell Cycle* 15: 2819-2826.
2. Kim, S.H., et al. 2017. Effect of active vitamin D₃ on VEGF-induced ADAM33 expression and proliferation in human airway smooth muscle cells: implications for asthma treatment. *Respir. Res.* 18: 7.

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.