

Factor VII siRNA (h): sc-40401

BACKGROUND

Hemostasis following tissue injury involves the deployment of essential plasma procoagulants (Prothrombin and Factors X, IX, V and VIII) that are involved in a blood coagulation cascade that leads to the formation of insoluble Fibrin clots and the promotion of platelet aggregation. Factor VII (serum Prothrombin conversion accelerator, proconvertin, F7, coagulation factor 7) is a 406 amino acid, vitamin K-dependent, single chain serine protease that is synthesized in the liver and circulates as an inactive precursor. Factor IX A, Factor X A, Factor XII A or thrombin mediated proteolytic cleavage of Factor VII at Arg 152-Ile 153 generates Factor VII A, an active serine protease composed of a catalytic heavy chain disulfide linked to a light chain, containing two EGF-like domains. Mutations at the F7 locus that lead to Factor VII deficiencies are generally asymptomatic or phenotypically uncharacterized, with hemorrhagic diathesis occurring at extremely low levels.

REFERENCES

1. Davie, E.W., et al. 1975. Basic mechanisms in blood coagulation. *Annu. Rev. Biochem.* 44: 799-829.
2. Hagen, F.S., et al. 1986. Characterization of a cDNA coding for human Factor VII. *Proc. Natl. Acad. Sci. USA* 83: 2412-2416.
3. O'Hara, P.J., et al. 1987. Nucleotide sequence of the gene coding for human Factor VII, a vitamin K-dependent protein participating in blood coagulation. *Proc. Natl. Acad. Sci. USA* 84: 5158-5162.
4. Davie, E.W., et al. 1991. The coagulation cascade: initiation, maintenance and regulation. *Biochemistry* 30: 10363-10370.

CHROMOSOMAL LOCATION

Genetic locus: F7 (human) mapping to 13q34.

PRODUCT

Factor VII 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 Factor VII shRNA Plasmid (h): sc-40401-SH and Factor VII shRNA (h) Lentiviral Particles: sc-40401-V as alternate gene silencing products.

For independent verification of Factor VII (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-40401A, sc-40401B and sc-40401C.

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

Factor VII siRNA (h) is recommended for the inhibition of Factor VII 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

Factor VII (CaFVII-22): sc-101369 is recommended as a control antibody for monitoring of Factor VII 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 Factor VII gene expression knockdown using RT-PCR Primer: Factor VII (h)-PR: sc-40401-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. Chen, K.D., et al. 2014. Interconnections between autophagy and the coagulation cascade in hepatocellular carcinoma. *Cell Death Dis.* 5: e1244.
2. Huang, K.T., et al. 2017. Factor VII-induced microRNA-135a inhibits autophagy and is associated with poor prognosis in hepatocellular carcinoma. *Mol. Ther. Nucleic Acids* 9: 274-283.

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.