

Factor H siRNA (h): sc-42877

BACKGROUND

The Factor H gene family is a multidomain, multifunctional protein family whose individual members are defined by conserved structural elements, which display diverse yet often overlapping functions. These proteins share a common structural motif, the short consensus repeat (SCR), which is structurally conserved among related genes and between phylogenetically divergent species. The human complement Factor H (FH, CFH, HUS, β -1H) gene encodes a 1,213 amino acid serum glycoprotein which is arranged into 20 SCRs, each approximately 60 amino acids long, and an 18-residue leader sequence. Factor H controls the function of the alternative complement pathway and acts as a cofactor with Factor I (C3b inactivator). In addition, Factor H has functional activity outside of the complement system, where it can bind to the cellular integrin receptor (CD11b/CD18), interact with cell surface glycosaminoglycans and associate with the surface of certain pathogenic microorganisms. Deficiencies in Factor H is a common characteristic of acute renal disease.

REFERENCES

1. Sim, E., et al. 1983. Monoclonal antibodies against the complement control protein factor H (β 1 H). *Biosci. Rep.* 3: 1119-1131.
2. Ripoche, J., et al. 1988. The complete amino acid sequence of human complement Factor H. *Biochem. J.* 249: 593-602.
3. Munoz-Canoves, P., et al. 1989. Analysis of complement Factor H mRNA expression: dexamethasone and IFN- γ increase the level of H in L cells. *Biochemistry* 28: 9891-9897.
4. Rougier, N., et al. 1998. Human complement Factor H deficiency associated with hemolytic uremic syndrome. *J. Am. Soc. Nephrol.* 9: 2318-2326.

CHROMOSOMAL LOCATION

Genetic locus: CFH (human) mapping to 1q31.3.

PRODUCT

Factor H 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 H shRNA Plasmid (h): sc-42877-SH and Factor H shRNA (h) Lentiviral Particles: sc-42877-V as alternate gene silencing products.

For independent verification of Factor H (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-42877A, sc-42877B and sc-42877C.

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 H siRNA (h) is recommended for the inhibition of Factor H 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 H (C18/3): sc-47685 is recommended as a control antibody for monitoring of Factor H 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 H gene expression knockdown using RT-PCR Primer: Factor H (h)-PR: sc-42877-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. Zhang, Y., et al. 2015. Complement Factor H expressed by retinal pigment epithelium cells can suppress neovascularization of human umbilical vein endothelial cells: an *in vitro* study. *PLoS ONE* 10: e0129945.
2. Matsuyama, T., et al. 2021. Complement activation by an angiogenic imbalance leads to systemic vascular endothelial dysfunction: a new proposal for the pathophysiology of preeclampsia. *J. Reprod. Immunol.* 145: 103322.

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.