

# fetuin-A siRNA (h): sc-39442

## BACKGROUND

Fetuin (also designated  $\alpha$ -2- $\zeta$ -globulin or  $\alpha$ -2-HS-glycoprotein) is a secreted plasma protein that is expressed in hepatocytes, monocyte/macrophages and in bone and is down-regulated during injury and inflammation. Fetuin preferentially binds to and carries calcium and barium ions in the blood, where it is thought to mediate serum calcium homeostasis and mineralization, and to potentially participate in the transport of bioactive molecules. Additionally, fetuin has been shown to function as an acute phase anti-inflammatory mediator that is critical to regulating the innate immune response following tissue injury. During inflammation, circulating fetuin levels substantially decrease as fetuin becomes associated with the membranes of macrophages. This membrane associated form of fetuin acts as an opsonic participant by potentiating the entry of cationic small molecules into the activated macrophage, which in turn facilitates macrophage-deactivating mechanisms. Biologically active fetuin is derived from a precursor protein that is cleaved at the amino terminus to generate two chains held together by a single disulfide bond.

## REFERENCES

1. Lebreton, J.P., et al. 1979. Serum concentration of human  $\alpha$ -2-HS-glycoprotein during the inflammatory process: evidence that  $\alpha$ -2-HS-glycoprotein is a negative acute-phase reactant. *J. Clin. Invest.* 64: 1118-1129.
2. Lee, C.C., et al. 1987. Human  $\alpha$ -2-HS-glycoprotein: the A and B chains with a connecting sequence are encoded by a single mRNA transcript. *Proc. Natl. Acad. Sci. USA* 84: 4403-4407.

## CHROMOSOMAL LOCATION

Genetic locus: AHSG (human) mapping to 3q27.3.

## PRODUCT

fetuin-A 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see fetuin-A shRNA Plasmid (h): sc-39442-SH and fetuin-A shRNA (h) Lentiviral Particles: sc-39442-V as alternate gene silencing products.

For independent verification of fetuin-A (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-39442A, sc-39442B and sc-39442C.

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

## RESEARCH USE

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

## APPLICATIONS

fetuin-A siRNA (h) is recommended for the inhibition of fetuin-A 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  $\mu$ M in 66  $\mu$ 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

fetuin-A (H-4): sc-133146 is recommended as a control antibody for monitoring of fetuin-A 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 fetuin-A gene expression knockdown using RT-PCR Primer: fetuin-A (h)-PR: sc-39442-PR (20  $\mu$ l, 495 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Jung, T.W., et al. 2013. Salsalate and adiponectin ameliorate hepatic steatosis by inhibition of the hepatokine fetuin-A. *Biochem. Pharmacol.* 86: 960-969.
2. Jung, T.W., et al. 2019. Protectin DX ameliorates palmitate-induced hepatic Insulin resistance through AMPK/SIRT1-mediated modulation of fetuin-A and SeP expression. *Clin. Exp. Pharmacol. Physiol.* 46: 898-909.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.