

PSA siRNA (h): sc-29458

BACKGROUND

Prostate specific antigen (PSA), also designated γ -seminoprotein, seminin, p30 antigen, semenogelase, and kallikrein 3 (KLK3), was first identified as a glycoprotein in human seminal plasma. PSA was determined by sequence similarity to be a member of the kallikrein subfamily of trypsin proteases. PSA is a serine protease that hydrolyzes the major human seminal protein, the seminal plasma mobility inhibitor precursor, or semenogelin I (SPMIP or Sgl), which leads to semen liquification. PSA production and expression are highest in normal, benign hyperplastic and cancerous tissues of the prostate, although PSA has also been detected in accessory male sex glands and in breast cancer. PSA has been identified as an aid in the early detection of prostate cancer and is a commonly used tumor marker.

REFERENCES

1. Watt, K.W., et al. 1986. Human prostate-specific antigen: structural and functional similarity with serine proteases. *Proc. Natl. Acad. Sci. USA* 83: 3166-3170.
2. Schaller, J., et al. 1987. Isolation, characterization and amino-acid sequence of γ -seminoprotein, a glycoprotein from human seminal plasma. *Eur. J. Biochem.* 170: 111-120.
3. Lundwall, A. and Lilja, H. 1987. Molecular cloning of human prostate specific antigen cDNA. *FEBS Lett.* 214: 317-322.
4. Catalona, W.J., et al. 1993. Detection of organ-confined prostate cancer is increased through prostate-specific antigen-based screening. *JAMA* 270: 948-954.

CHROMOSOMAL LOCATION

Genetic locus: KLK3 (human) mapping to 19q13.33.

PRODUCT

PSA 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 PSA shRNA Plasmid (h): sc-29458-SH and PSA shRNA (h) Lentiviral Particles: sc-29458-V as alternate gene silencing products.

For independent verification of PSA (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-29458A, sc-29458B and sc-29458C.

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

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

PSA (A67-B/E3): sc-7316 is recommended as a control antibody for monitoring of PSA 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 PSA gene expression knockdown using RT-PCR Primer: PSA (h)-PR: sc-29458-PR (20 μ l, 449 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Fuso, A., et al. 2007. γ -secretase is differentially modulated by alterations of homocysteine cycle in neuroblastoma and glioblastoma cells. *J. Alzheimers Dis.* 11: 275-290.
2. Xu, Y., et al. 2012. Inverse relationship between PSA and IL-8 in prostate cancer: an insight into a NF κ B-mediated mechanism. *PLoS ONE* 7: e32905.

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.