

S-100A3 siRNA (h): sc-78754

BACKGROUND

The S-100 protein family consists of a group of calcium-binding proteins that are exclusively expressed in vertebrates and exhibit cell and tissue-specific expression. The expression levels of its members differ in various pathological conditions. The extracellular functions of the S-100 family may include the ability to enhance neurite outgrowth, involvement in inflammation and motility of tumor cells. S-100A3 (S-100 calcium binding protein A3), also known as S100E, is a 101 amino acid cysteine-rich protein that belongs to the S-100 family of proteins. Expressed specifically at the inner endocuticle of hair fibers, S-100A3 contains two EF-hand domains and exists as a multimer. S-100A3 binds calcium with low affinity and zinc with high affinity and is believed to play a role in the calcium-dependent differentiation of cuticle cells and in the formation of hair shafts.

REFERENCES

- Engelkamp, D., et al. 1993. Six S-100 genes are clustered on human chromosome 1q21: identification of two genes coding for the two previously unreported calcium-binding proteins S100D and S100E. *Proc. Natl. Acad. Sci. USA* 90: 6547-6551.
- Schäfer, B.W., et al. 1995. Isolation of a YAC clone covering a cluster of nine S-100 genes on human chromosome 1q21: rationale for a new nomenclature of the S-100 calcium-binding protein family. *Genomics* 25: 638-643.
- Mittl, P.R., et al. 2002. Metal-free MIRAS phasing: structure of apo-S-100A3. *Acta Crystallogr. D Biol. Crystallogr.* 58: 1255-1261.
- Kizawa, K., et al. 2002. Characterization of the cysteine-rich calcium-binding S-100A3 protein from human hair cuticles. *Biochem. Biophys. Res. Commun.* 299: 857-862.

CHROMOSOMAL LOCATION

Genetic locus: S100A3 (human) mapping to 1q21.3.

PRODUCT

S-100A3 siRNA (h) is a pool of 2 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 S-100A3 shRNA Plasmid (h): sc-78754-SH and S-100A3 shRNA (h) Lentiviral Particles: sc-78754-V as alternate gene silencing products.

For independent verification of S-100A3 (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-78754A and sc-78754B.

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

S-100A3 siRNA (h) is recommended for the inhibition of S-100A3 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

S-100A3 (A-11): sc-514339 is recommended as a control antibody for monitoring of S-100A3 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 S-100A3 gene expression knockdown using RT-PCR Primer: S-100A3 (h)-PR: sc-78754-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

- Kang, M., et al. 2015. S100A3 suppression inhibits *in vitro* and *in vivo* tumor growth and invasion of human castration-resistant prostate cancer cells. *Urology* 85: 273.e9-273.e15.

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.