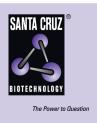
# SANTA CRUZ BIOTECHNOLOGY, INC.

# α-actinin-1 siRNA (h): sc-43095



# BACKGROUND

The spectrin gene family encodes a diverse group of cytoskeletal proteins that include spectrins, dystrophins and  $\alpha$ -actinins. There are four tissue-specific  $\alpha$ -actinins, namely  $\alpha$ -actinin-1,  $\alpha$ -actinin-2,  $\alpha$ -actinin-3 and  $\alpha$ -actinin-4, which are localized to muscle and non-muscle cells, including skeletal, cardiac and smooth muscle cells, as well as within the cytoskeleton. Each  $\alpha$ -actinin protein contains one Actin-binding domain, two calponin-homology domains, two EF-hand domains and four spectrin repeats, through which they function as bundling proteins that can cross-link F-Actin, thus anchoring actin to a variety of intracellular structures. Defects in the gene encoding  $\alpha$ -actinin-4 are the cause of focal segmental glomerulosclerosis 1 (FSGS1), a common renal lesion characterized by decreasing kidney function and, ultimately, renal failure.

# REFERENCES

- 1. Youssoufian, H., et al. 1990. Cloning and chromosomal localization of the human cytoskeletal  $\alpha$ -actinin gene reveals linkage to the  $\beta$ -spectrin gene. Am. J. Hum. Genet. 47: 62-71.
- 2. Nishiyama, M., et al. 1990. Expression of human  $\alpha$ -actinin in human hepatocellular carcinoma. Cancer Res. 50: 6291-6294.
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- Knudsen, K.A., et al. 1995. Interaction of α-actinin with the cadherin/ catenin cell-cell adhesion complex via α-catenin. J. Cell Biol. 130: 67-77.
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- Harper, B.D., et al. 2000. Fine mapping of the α-actinin binding site within cysteine-rich protein. Biochem. J. 350: 269-274.
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- 8. Bois, P.R., et al. 2005. Structural dynamics of  $\alpha\text{-actinin-vinculin interactions.}$  Mol. Cell. Biol. 25: 6112-6122.

#### CHROMOSOMAL LOCATION

Genetic locus: ACTN1 (human) mapping to 14q24.1.

#### PRODUCT

 $\alpha$ -actinin-1 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  $\alpha$ -actinin-1 shRNA Plasmid (h): sc-43095-SH and  $\alpha$ -actinin-1 shRNA (h) Lentiviral Particles: sc-43095-V as alternate gene silencing products.

For independent verification of  $\alpha$ -actinin-1 (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-43095A, sc-43095B and sc-43095C.

#### 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.

#### **APPLICATIONS**

 $\alpha\text{-actinin-1}$  siRNA (h) is recommended for the inhibition of  $\alpha\text{-actinin-1}$  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.

#### **RT-PCR REAGENTS**

Semi-quantitative RT-PCR may be performed to monitor  $\alpha$ -actinin-1 gene expression knockdown using RT-PCR Primer:  $\alpha$ -actinin-1 (h)-PR: sc-43095-PR (20  $\mu$ l, 548 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

# SELECT PRODUCT CITATIONS

 Song, Y., et al. 2011. Microfilaments facilitate TLR4-mediated ICAM-1 expression in human aortic valve interstitial cells. J. Surg. Res. 166: 52-58.

#### **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.