SANTA CRUZ BIOTECHNOLOGY, INC.

# α-actinin-1 siRNA (m): sc-43096

SANTA CRUZ BIOTECHNOLOGY

*The Power to Question*

## BACKGROUND

The spectrin gene family encodes a diverse group of cytoskeletal proteins that include spectrins, dystrophins and α-actinins. There are four tissue-specific α-actinins, namely α-actinin-1, α-actinin-2, α-actinin-3 and α-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 α-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 α-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 α-actinin gene reveals linkage to the β-spectrin gene. Am. J. Hum. Genet. 47: 62-71.
2. Nishiyama, M., et al. 1990. Expression of human α-actinin in human hepatocellular carcinoma. Cancer Res. 50: 6291-6294.
3. Yürüker, B., et al. 1992. α-actinin and vinculin in human neutrophils: reorganization during adhesion and relation to the actin network. J. Cell Sci. 101: 403-414.
4. 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.
5. Reinhard, M., et al. 1999. An α-actinin binding site of zyxin is essential for subcellular zyxin localization and α-actinin recruitment. J. Biol. Chem. 274: 13410-13418.
6. Harper, B.D., et al. 2000. Fine mapping of the α-actinin binding site within cysteine-rich protein. Biochem. J. 350: 269-274.
7. Gonzalez, A.M., et al. 2001. Interactions of a hemidesmosome component and actinin family members. J. Cell Sci. 114: 4197-4206.
8. Bois, P.R., et al. 2005. Structural dynamics of α-actinin-vinculin interactions. Mol. Cell. Biol. 25: 6112-6122.


## CHROMOSOMAL LOCATION

Genetic locus: Actn1 (mouse) mapping to 12 C3.

## PRODUCT

α-actinin-1 siRNA (m) 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see α-actinin-1 shRNA Plasmid (m): sc-43096-SH and α-actinin-1 shRNA (m) Lentiviral Particles: sc-43096-V as alternate gene silencing products.

For independent verification of α-actinin-1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-43096A, sc-43096B and sc-43096C.

## 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 µl of the RNAse-free water provided. Resuspension of the siRNA duplex in 330 µl of RNAse-free water makes a 10 µM solution in a 10 µM Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

## APPLICATIONS

α-actinin-1 siRNA (m) is recommended for the inhibition of α-actinin-1 expression in mouse 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 µM in 66 µl. 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 α-actinin-1 gene expression knockdown using RT-PCR Primer: α-actinin-1 (m)-PR: sc-43096-PR (20 µl, 594 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Chronopoulos, A., et al. 2020. Syndecan-4 tunes cell mechanics by activating the kindlin-integrin-RhoA pathway. Nat. Mater. 19: 669-678.


## 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.