

α -actinin-1 siRNA (h): sc-43095

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

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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.
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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 (human) mapping to 14q24.1.

PRODUCT

α -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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see α -actinin-1 shRNA Plasmid (h): sc-43095-SH and α -actinin-1 shRNA (h) Lentiviral Particles: sc-43095-V as alternate gene silencing products.

For independent verification of α -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 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

α -actinin-1 siRNA (h) is recommended for the inhibition of α -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 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.

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 (h)-PR: sc-43095-PR (20 μ 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

1. 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.