SANTA CRUZ BIOTECHNOLOGY, INC.

# MRTF-A siRNA (h): sc-43944

## BACKGROUND

Serum response factor (SRF) is a transcription factor that binds the serum response element (SRE), a sequence that mediates the transient response of many cellular genes to growth stimulation. SRF regulates the transient response of several muscle genes in response to growth factors and recruits accessory myogenic factors to activate these muscle genes. SRF is required for the formation of vertebrate mesoderm leading to the origin of the cardiovascular system. Myocardin, in association with SRF in cardiac muscle cells, activates cardiac muscle promoters. Myocardin-related transcription factor A (MRTF-A), also known as MKL1, interacts with SRF and stimulates its transcriptional activity.

## REFERENCES


1. Norman, C., et al. 1988. Isolation and properties of cDNA clones encoding SRF, a transcription factor that binds to the c-Fos serum response element. Cell 55: 989-1003.
2. Treisman, R. 1990. The SRE: a growth factor responsive transcriptional regulator. Semin. Cancer Biol. 1: 47-58.
3. Hill, C.S., et al. 1993. Functional analysis of a growth factor-responsive transcription factor complex. Cell 73: 395-406.
4. Wang, D.Z., et al. 2002. Potentiation of serum response factor activity by a family of Myocardin-related transcription factors. Proc. Natl. Acad. Sci. USA 99: 14855-14860.


## CHROMOSOMAL LOCATION

Genetic locus: MKL1 (human) mapping to 22q13.1.

## PRODUCT

MRTF-A siRNA (h) is a target-specific 19-25 nt siRNA 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 MRTF-A shRNA Plasmid (h): sc-43944-SH and MRTF-A shRNA (h) Lentiviral Particles: sc-43944-V as alternate gene silencing products.

## 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

MRTF-A siRNA (h) is recommended for the inhibition of MRTF-A 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 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.

## GENE EXPRESSION MONITORING

MRTF-A (G-7): sc-398675 is recommended as a control antibody for monitoring of MRTF-A 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-IgGκ BP-HRP: sc-516102 or m-IgGκ 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-IgGκ BP-FITC: sc-516140 or m-IgGκ 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 MRTF-A gene expression knockdown using RT-PCR Primer: MRTF-A (h)-PR: sc-43944-PR (20 µl, 560 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS


1. Ni, J., et al. 2013. The role of RhoA and cytoskeleton in myofibroblast transformation in hyperoxic lung fibrosis. Free Radic. Biol. Med. 61: 26-39.
2. Joy, M., et al. 2017. The Myocardin-related transcription factor MKL co-regulates the cellular levels of two profilin isoforms. J. Biol. Chem. 292: 11777-11791.
3. Gau, D., et al. 2017. Pharmacological intervention of MKL/SRF signaling by CCG-1423 impedes endothelial cell migration and angiogenesis. Angiogenesis 20: 663-672.
4. Fearing, B.V., et al. 2019. Mechanosensitive transcriptional coactivators MRTF-A and YAP/TAZ regulate nucleus pulposus cell phenotype through cell shape. FASEB J. 33: 14022-14035.
5. Gau, D., et al. 2022. Myocardin-related transcription factor's interaction with serum-response factor is critical for outgrowth initiation, progression, and metastatic colonization of breast cancer cells. FASEB Bioadv. 4: 509-523.


## RESEARCH USE

For research use only, not for use in diagnostic procedures.