

MTF-1 siRNA (h): sc-43949

BACKGROUND

The metal-responsive element (MRE)-binding transcription factor (MTF-1) stimulates the expression of metallothioneins in response to the exposure of cells to heavy metals. MTF-1 contains six zinc fingers in the DNA binding domain. The phosphorylation of MTF-1 in response to metal exposure appears to play a significant role in the ability of MTF-1 to activate metallothionein transcription. In addition to its role in metallothionein activation, MTF-1 is involved in a post-transcription regulatory complex for ribosomal protein S25. MTF-1, La and p53 inhibit the nuclear export of S25 mRNA in response to nutrient deprivation. Furthermore, MTF-1 acts as a chromatin insulator on integrated *trans*-genes in cultured cells to insulate active loci against chromatin silencing.

REFERENCES

- Westin, G., et al. 1988. A zinc-responsive factor interacts with a metal-regulated enhancer element (MRE) of the mouse metallothionein-I gene. *EMBO J.* 7: 3763-3770.
- Radtke, F., et al. 1993. Cloned transcription factor MTF-1 activates the mouse metallothionein I promoter. *EMBO J.* 12: 1355-1362.
- Brugnera, E., et al. 1994. Cloning, chromosomal mapping and characterization of the human metal-regulatory transcription factor MTF-1. *Nucleic Acids Res.* 22: 3167-3173.
- Adilakshmi, T., et al. 2002. Ribosomal protein S25 mRNA partners with MTF-1 and La to provide a p53-mediated mechanism for survival or death. *J. Biol. Chem.* 277: 4147-4151.
- Saydam, N., et al. 2002. Regulation of metallothionein transcription by the metal-responsive transcription factor MTF-1: identification of signal transduction cascades that control metal-inducible transcription. *J. Biol. Chem.* 277: 20438-20445.
- Sutter, N.B., et al. 2003. Chromatin insulation by a transcriptional activator. *Proc. Natl. Acad. Sci. USA* 100: 1105-1110.

CHROMOSOMAL LOCATION

Genetic locus: MTF1 (human) mapping to 1p34.3.

PRODUCT

MTF-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 MTF-1 shRNA Plasmid (h): sc-43949-SH and MTF-1 shRNA (h) Lentiviral Particles: sc-43949-V as alternate gene silencing products.

For independent verification of MTF-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-43949A, sc-43949B and sc-43949C.

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support 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 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

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

GENE EXPRESSION MONITORING

MTF-1 (H-6): sc-365090 is recommended as a control antibody for monitoring of MTF-1 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 MTF-1 gene expression knockdown using RT-PCR Primer: MTF-1 (h)-PR: sc-43949-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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