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SANTA CRUZ BIOTECHNOLOGY, INC.

MTF-1 siRNA (m): sc-44354

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 depravation. Furthermore, MTF-1 acts as a chromatin insulator on integrated transgenes in cultured cells to insulate active loci against chromatin silencing.

REFERENCES

1. 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.
2. Radtke, F., et al. 1993. Cloned transcription factor MTF-1 activates the mouse metallothionein I promoter. EMBO J. 12: 1355-1362.
3. 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.
4. 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.
5. 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.
6. 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 (mouse) mapping to 4 D2.2.

PRODUCT

MTF-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 MTF-1 shRNA Plasmid (m): sc-44354-SH and MTF-1 shRNA (m) Lentiviral Particles: sc-44354-V as alternate gene silencing products.

For independent verification of MTF-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-44354A, sc-44354B and sc-44354C.

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 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

MTF-1 siRNA (m) is recommended for the inhibition of MTF-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 MTF-1 gene expression knockdown using RT-PCR Primer: MTF-1 (m)-PR: sc-44354-PR (20 µl). 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.