SANTA CRUZ BIOTECHNOLOGY, INC.

Metallothionein 3 siRNA (h): sc-93438

BACKGROUND

Metallothionein (MT) is a sulfhydryl- and cysteine-rich protein found in microorganisms, plants and all invertebrate and vertebrate animals. Metallothioneins are a group of ubiquitous low-molecular-weight proteins that have functional roles in cell growth, repair and differentiation. Metallothionein are implicated primarily in metal ion detoxification as they are essential for the protection of cells against the toxicity of cadmium, mercury and copper. Metallothioneins are known to be broadly expressed in heart, liver, kidney, breast and testis tissue. Metallothionein 3, also known as MT-3 or GIFB (growth inhibitory factor), is a 68 amino acid protein that belongs to the type 1 family and Metallothionein superfamily. While highly expressed in astrocytes of the normal human brain, Metallothionein 3 expression is reduced in the brains of patients with Alzheimer disease.

REFERENCES

1. Uchida, Y., et al. 1991. The growth inhibitory factor that is deficient in the Alzheimer's disease brain is a 68 amino acid Metallothionein-like protein. Neuron 7: 337-347.
2. Palmiter, R.D., et al. 1992. MT-III, a brain-specific member of the Metallothionein gene family. Proc. Natl. Acad. Sci. USA 89: 6333-6337.
3. Ioachim, E.E., et al. 2000. Immunohistochemical localization of Metallothionein in endometrial lesions. J. Pathol. 191: 269-273.
4. Liu, J., et al. 2000. Metallothionein I/II null mice are more sensitive than wildtype mice to the hepatotoxic and nephrotoxic effects of chronic oral or injected inorganic arsenicals. Toxicol. Sci. 55: 460-467.
5. Cai, L., et al. 2000. Induction of Metallothionein synthesis with preservation of testicular function in rats following long term renal transplantation. Urol. Res. 28: 97-103.
6. Florianczyk, B. and Grzybowska, L. 2000. Metallothionein levels in cell fractions from breast cancer tissues. Acta Oncol. 39: 141-143.
7. Theocharis, S.E., et al. 2000. Liver Metallothionein expression in thioacetamide-intoxicated rats. Pathol. Res. Pract. 196: 313-319.
8. Kang, Y.J., et al. 2000. Metallothionein inhibits myocardial apoptosis in copper-deficient mice: role of atrial natriuretic peptide. Lab. Invest. 80: 745-757.

CHROMOSOMAL LOCATION

Genetic locus: MT3 (human) mapping to 16q12.2.

PRODUCT

Metallothionein 3 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 Metallothionein 3 shRNA Plasmid (h): sc-93438-SH and Metallothionein 3 shRNA (h) Lentiviral Particles: sc-93438-V as alternate gene silencing products.

RESEARCH USE

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

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

Metallothionein 3 siRNA (h) is recommended for the inhibition of Metallothionein 3 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

Metallothionein 3 (1F11): sc-293488 is recommended as a control antibody for monitoring of Metallothionein 3 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 Metallothionein 3 gene expression knockdown using RT-PCR Primer: Metallothionein 3 (h)-PR: sc-93438-PR (20 µl, 488 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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