SANTA CRUZ BIOTECHNOLOGY, INC.

Metallothionein 1A siRNA (h): sc-93053

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. They are implicated primarily in metal ion detoxification, in that they are essential for the protection of cells against the toxicity of cadmium, mercury and copper. Metallothionein, as an acute phase or stress-response protein and free radical scavenger, is related to inflammation and cellular protection from reactive forms of oxygen, ionizing radiation, pharmacological agents and mutagens. Metallothioneins are known to be broadly expressed in heart, liver, kidney, breast and testis tissue. Metallothionein 1A, also known as MTC or MT1S, is a member of the type 1 family of Metallothioneins and its expression is regulated by intracellular copper levels.

REFERENCES

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3. 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.
4. Florianczyk, B., et al. 2000. Metallothionein levels in cell fractions from breast cancer tissues. Acta Oncol. 39: 141-143.
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6. Kang, Y.J., et al. 2000. Metallothionein inhibits myocardial apoptosis in copper-deficient mice: role of atrial natriuretic peptide. Lab. Invest. 80: 745-757.
7. Syring, R.A., et al. 2000. Cloning and sequencing of cDNAs encoding for a novel copper-specific Metallothionein and two cadmium-inducible Metallothioneins from the blue crab *Callinectes sapidus*. Comp. Biochem. Physiol. C Toxicol. Pharmacol. 125: 325-332.
8. Jayasurya, A., et al. 2000. Infiltrating lymphocytes in undifferentiated nasopharyngeal cancer lack metallothionein expression. Cancer Lett. 155: 99-104.
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CHROMOSOMAL LOCATION

Genetic locus: MT1A (human) mapping to 16q12.2.

PROTOCOLS

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

PRODUCT

Metallothionein 1A siRNA (h) is a pool of 2 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 Metallothionein 1A shRNA Plasmid (h): sc-93053-SH and Metallothionein 1A shRNA (h) Lentiviral Particles: sc-93053-V as alternate gene silencing products.

For independent verification of Metallothionein 1A (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-93053A and sc-93053B.

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 1A siRNA (h) is recommended for the inhibition of Metallothionein 1A 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.

RESEARCH USE

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