SANTA CRUZ BIOTECHNOLOGY, INC.

Metallothionein siRNA (m): sc-35926

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. Metallothioneins 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.

REFERENCES

1. Ioachim, E.E., et al. 2000. Immunohistochemical localization of Metallothionein in endometrial lesions. J. Pathol. 191: 269-273.
2. 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.
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.
5. Theocharis, S.E., et al. 2000. Liver Metallothionein expression in thioacet-amide-intoxicated rats. Pathol. Res. Pract. 196: 313-319.
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.

CHROMOSOMAL LOCATION

Genetic locus: Mt1/Mt2/Mt3/Mt4 (mouse) mapping to 8 C5, Mt5 (mouse) mapping to 19 A.

PRODUCT

Metallothionein siRNA (m) is a pool of 5 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 shRNA Plasmid (m): sc-35926-SH and Metallothionein shRNA (m) Lentiviral Particles: sc-35926-V as alternate gene silencing products.

For independent verification of Metallothionein (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-35926A, sc-35926B and sc-35926C, sc-35926D and sc-35926E.

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 siRNA (m) is recommended for the inhibition of Metallothionein 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.

SELECT PRODUCT CITATIONS

1. Tachibana, H., et al. 2014. Metallothionein deficiency exacerbates diabetic nephropathy in streptozotocin-induced diabetic mice. Am. J. Physiol. Renal Physiol. 306: F105-F115.
2. Kadota, Y., et al. 2017. Metallothioneins regulate the adipogenic differentiation of 3T3-L1 cells via the Insulin signaling pathway. PLoS ONE 12: e0176070.
3. Dury, L., et al. 2017. Flavonoid dimers are highly potent killers of multidrug resistant cancer cells overexpressing MRP1. Biochem. Pharmacol. 124: 10-18.

RESEARCH USE

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

PROTOCOLS

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