SANTA CRUZ BIOTECHNOLOGY, INC.

MDA-7 siRNA (h): sc-37446

BACKGROUND

MDA-7 (melanoma differentiation associated protein-7) was initially identified in cultured human melanoma cells following treatment with interferon-β and mezerin, a treatment that causes the cells to lose proliferative capacity and terminally differentiate. MDA-7 was shown to have antiproliferative properties in human melanoma cells and to reduce cell growth in tumors of diverse origin. The level of MDA-7 expression is inversely correlated with human melanoma progression, with the highest levels found in normal, proliferating melanocytes and the lowest levels found in metastatic melanoma. Overexpression of MDA-7 in human breast cancer cells has been shown to induce apoptosis and upregulate Bax expression in a p53-independent manner. However, MDA-7 does not elicit growth inhibition and apoptosis in normal, nontumor cells.

REFERENCES

1. Fisher, P.B., et al. 1985. Effects of combined treatment with interferon and mezerein on melanogenesis and growth in human melanoma cells. J. Interferon Res. 5: 11-22.
2. Jiang, H., et al. 1995. Subtraction hybridization identifies a novel melanoma differentiation associated gene, MDA-7, modulated during human melanoma differentiation, growth and progression. Oncogene 11: 2477-2486.
3. Jiang, H., et al. 1996. The melanoma differentiation associated gene MDA-7 suppresses cancer cell growth. Proc. Natl. Acad. Sci. USA 93: 9160-9165.
4. Su, Z.Z., et al. 1998. The cancer growth suppressor gene MDA-7 selectively induces apoptosis in human breast cancer cells and inhibits tumor growth in nude mice. Proc. Natl. Acad. Sci. USA 95: 14400-14405.

CHROMOSOMAL LOCATION

Genetic locus: IL24 (human) mapping to 1q32.1.

PRODUCT

MDA-7 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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MDA-7 shRNA Plasmid (h): sc-37446-SH and MDA-7 shRNA (h) Lentiviral Particles: sc-37446-V as alternate gene silencing products.

For independent verification of MDA-7 (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-37446A, sc-37446B and sc-37446C.

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

MDA-7 siRNA (h) is recommended for the inhibition of MDA-7 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

MDA-7 (Y14): sc-80184 is recommended as a control antibody for monitoring of MDA-7 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 MDA-7 gene expression knockdown using RT-PCR Primer: MDA-7 (h)-PR: sc-37446-PR (20 µl, 515 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Tian, H., et al. 2014. MDA-7/IL-24 inhibits Nrf2-mediated antioxidant response through activation of p38 pathway and inhibition of ERK pathway involved in cancer cell apoptosis. Cancer Gene Ther. 21: 416-426.
2. Tian, H., et al. 2015. Melanoma differentiation associated gene-7/interleukin-24 induces caspase-3 denitrosylation to facilitate the activation of cancer cell apoptosis. J. Interferon Cytokine Res. 35: 157-167.

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.