SANTA CRUZ BIOTECHNOLOGY, INC.

melanotransferrin siRNA (h): sc-41373

BACKGROUND

Melanotransferrin is a member of the transferrin family of iron-binding proteins, which also includes serum transferrin, lactoferrin, and ovotransferrin, and it is highly expressed on melanoma cells. Melanotransferrin, also designated p97, shares a high degree of homology with transferrin, but does not play a significant role in the uptake of iron. Melanotransferrin utilizes a member of the low-density lipoprotein receptor family for transendothelial transport, which is not as efficient as the transport of transferrin through the corresponding transferrin receptor. The gene encoding human melanotransferrin maps to chromosome 3q29, and is predominantly expressed as either a membrane bound protein or a secreted form of the protein. Melanotransferrin is expressed in brain, where it may be involved in Alzheimer's disease. Melanotransferrin may also protect against membrane-lipid peroxidation, possess a metalloprotease activity, and possibly participate in intracellular adhesion. Further research will be necessary to fully elucidate the functions of this protein.

REFERENCES

1. Le Beau, M.M., et al. 1986. Chromosomal sublocalization of the human p97 melanoma antigen. Hum. Genet. 72: 294-296.
2. Garratt, R.C. and Jhoti, H. 1992. A molecular model for the tumour-associated antigen, p97, suggests a Zn-binding function. FEBS Lett. 305: 55-61.
3. Rothenberger, S., et al. 1996. Coincident expression and distribution of melanotransferrin and transferrin receptor in human brain capillary endothelium. Brain Res. 712: 117-121.
4. Yamada, T., et al. 1999. Melanotransferrin is produced by senile plaque-associated reactive microglia in Alzheimer's disease. Brain Res. 845: 1-5.
5. Richardson, D.R. 2000. The role of the membrane-bound tumour antigen, melanotransferrin (p97), in iron uptake by the human malignant melanoma cell. Eur. J. Biochem. 267: 1290-1298.
6. Sekyere, E. and Richardson, D.R. 2000. The membrane-bound transferrin homologue melanotransferrin: roles other than iron transport? FEBS Lett. 483: 11-16.

CHROMOSOMAL LOCATION

Genetic locus: MFI2 (human) mapping to 3q29.

PRODUCT

melanotransferrin 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 melanotransferrin shRNA Plasmid (h): sc-41373-SH and melanotransferrin shRNA (h) Lentiviral Particles: sc-41373-V as alternate gene silencing products.

For independent verification of melanotransferrin (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-41373A, sc-41373B and sc-41373C.

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

melanotransferrin siRNA (h) is recommended for the inhibition of melanotransferrin 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

melanotransferrin (E-4): sc-271633 is recommended as a control antibody for monitoring of melanotransferrin 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 melanotransferrin gene expression knockdown using RT-PCR Primer: melanotransferrin (h)-PR: sc-41373-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.

PROTOCOLS

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