

Tom70 siRNA (m): sc-154554

BACKGROUND

The mitochondrial protein translocase (MPT) shuttles preproteins into the mitochondria via recognition of an amino-terminal signal sequence (presequence) or an internal targeting domain within the preprotein. MPT contains several components that form three translocons, one in the outer membrane (Tom40/70) and two in the inner membrane (Tim17/23 and Tim22/54). The integral membrane proteins of the MPT include Tom70, Tom37, Tom22 and Tom20. MPT-dependent transport delivers the substrate protein to an outer membrane channel consisting of 5 hydrophobic proteins, Tom40, Tom38, Tom7, Tom6 and Tom5. The human Tom70 gene maps to chromosome 3q12.2.

REFERENCES

1. Dekker, P.J., et al. 1997. The Tim core complex defines the number of mitochondrial translocation contact sites and can hold arrested preproteins in the absence of matrix Hsp70-Tim44. *EMBO J.* 16: 5408-5419.
2. Hill, K., et al. 1998. Tom40 forms the hydrophilic channel of the mitochondrial import pore for preproteins. *Nature* 395: 516-521.
3. Diekert, K., et al. 1999. An internal targeting signal directing proteins into the mitochondrial intermembrane space. *Proc. Natl. Acad. Sci. USA* 96: 21.
4. Agarraberes, F.A., et al. 2001. Protein translocation across membranes. *Biochim. Biophys. Acta* 1513: 1-24.
5. Suzuki, H., et al. 2002. Characterization of rat TOM70 as a receptor of the preprotein translocase of the mitochondrial outer membrane. *J. Cell Sci.* 115: 1895-1905.
6. Nuttall, S.D., et al. 2003. Isolation and characterization of an IgNAR variable domain specific for the human mitochondrial translocase receptor Tom70. *Eur. J. Biochem.* 270: 3543-3554.
7. Online Mendelian Inheritance in Man, OMIM[™]. 2003. Johns Hopkins University, Baltimore, MD. MIM Number: 606081. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
8. Beddoe, T., et al. 2004. A biophysical analysis of the tetratricopeptide repeat-rich mitochondrial import receptor, Tom70, reveals an elongated monomer that is inherently flexible, unstable, and unfolds via a multistate pathway. *J. Biol. Chem.* 279: 46448-46454.

CHROMOSOMAL LOCATION

Genetic locus: Tomm70a (mouse) mapping to 16 C1.1.

PRODUCT

Tom70 siRNA (m) 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Tom70 shRNA Plasmid (m): sc-154554-SH and Tom70 shRNA (m) Lentiviral Particles: sc-154554-V as alternate gene silencing products.

For independent verification of Tom70 (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-154554A, sc-154554B and sc-154554C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

Tom70 siRNA (m) is recommended for the inhibition of Tom70 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 μ M in 66 μ l. 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

Tom70 (A-8): sc-390545 is recommended as a control antibody for monitoring of Tom70 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 Tom70 gene expression knockdown using RT-PCR Primer: Tom70 (m)-PR: sc-154554-PR (20 μ l). 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.