SANTA CRUZ BIOTECHNOLOGY, INC.

Tom34 siRNA (h): sc-76712

BACKGROUND

The mitochondrial preprotein translocases of the outer membrane (Tom) form a multisubunit complex that facilitates the import of nuclear-encoded precursor proteins across the mitochondrial outer membrane. The Tom machinery consists of import receptors for the initial binding of cytosolically synthesized preproteins, and a general import pore (GIP) for the membrane translocation of various preproteins into the mitochondrion. Tom34 (translocase of outer mitochondrial membrane 34), also known as TOMM34, URCC3 or HTOM34P, is a ubiquitously expressed 309 amino acid protein that contains six TPR repeats. Localized to the cytoplasmic side of the mitochondrion, Tom34 functions as a chaperone-like protein that binds the mature portion of unfolded proteins and guides their import into mitochondria. In addition, Tom34 is thought to have weak ATPase activity and may interact with other organelles within the cell. Expression of Tom34 is upregulated in colon cancer cells and is thought to be involved in tumor progression. Tom34 may, therefore, be a novel target for therapeutic anti-cancer drugs.

REFERENCES

1. Nuttall, S.D., et al. 1997. HTom34: a novel translocase for the import of proteins into human mitochondria. DNA Cell Biol. 16: 1067-1074.
2. Chewawiwat, N., et al. 1999. Characterization of the novel mitochondrial protein import component, Tom34, in mammalian cells. J. Biochem. 125: 721-727.
3. Mukhopadhyay, A., et al. 2002. Tom34 unlike Tom20 does not interact with the leader sequences of mitochondrial precursor proteins. Arch. Biochem. Biophys. 400: 97-104.
4. Yang, C.S. and Weiner, H. 2002. Yeast two-hybrid screening identifies binding partners of human Tom34 that have ATPase activity and form a complex with Tom34 in the cytosol. Arch. Biochem. Biophys. 400: 105-110.
5. Blesa, J.R., et al. 2004. Conformation-sensitive gel electrophoresis as an ideal high-throughput strategy for accurate detection of sequence variations in DNA: screening hTomm and hTimm genes. J. Biomol. Screen. 9: 621-624.
6. Olsen, J.V., et al. 2006. Global, *in vivo,* and site-specific phosphorylation dynamics in signaling networks. Cell 127: 635-648.

CHROMOSOMAL LOCATION

Genetic locus: TOMM34 (human) mapping to 20q13.12.

PRODUCT

Tom34 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 Tom34 shRNA Plasmid (h): sc-76712-SH and Tom34 shRNA (h) Lentiviral Particles: sc-76712-V as alternate gene silencing products.

For independent verification of Tom34 (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-76712A, sc-76712B and sc-76712C.

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

Tom34 siRNA (h) is recommended for the inhibition of Tom34 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

Tom34 (S-05): sc-101284 is recommended as a control antibody for monitoring of Tom34 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 Tom34 gene expression knockdown using RT-PCR Primer: Tom34 (h)-PR: sc-76712-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.