SANTA CRUZ BIOTECHNOLOGY, INC.

TRAM2 siRNA (h): sc-95376

BACKGROUND

TRAM2 (translocation associated membrane protein 2) is a 370 amino acid multi-pass membrane protein containing one TLC (TRAM/LAG1/CLN8) domain. TRAM2 interacts with SERCA2B and COL1A1 and is necessary for collagen type I synthesis. TRAM2 facilitates proper folding of collagen by coupling the activity of SERCA2B, an ER Ca^{2+} pump, and the activity of translocons, thereby increasing local Ca^{2+} concentration at the site of collagen synthesis and stimulating molecular chaperones that are involved in collagen folding. It is suggested that TRAM2 is regulated by RUNX2 in a BMP-dependent manner and may play a role in the overall osteogenic function of RUNX2. RUNX2 is essential for skeletal mineralization in which it stimulates osteoblast differentiation of mesenchymal stem cells, promotes chondrocyte hypertrophy and contributes to endothelial cell migration and vascular invasion of developing bones.

REFERENCES

1. Onuchic, L.F., et al. 1999. Genomic organization of the KIAA0057 gene that encodes a TRAM-like protein and its exclusion as a polycystic kidney and hepatic disease 1 (PKHD1) candidate gene. Mamm. Genome 10: 1175-1178.
2. Stefanovic, B., et al. 2004. TRAM2 protein interacts with endoplasmic reticulum Ca^{2+} pump Serca2b and is necessary for collagen type I synthesis. Mol. Cell. Biol. 24: 1758-1768.
3. Online Mendelian Inheritance in Man, OMIM™. 2004. Johns Hopkins University, Baltimore, MD. MIM Number: 608485. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/
4. Yoshida, C.A., et al. 2005. Role of Runx proteins in chondrogenesis. Crit. Rev. Eukaryot. Gene Expr. 15: 243-254.
5. Westendorf, J.J. 2006. Transcriptional co-repressors of RUNX2. J. Cell. Biochem. 98: 54-64.
6. Pregizer, S., et al. 2007. Identification of novel RUNX2 targets in osteoblasts: cell type-specific BMP-dependent regulation of TRAM2. J. Cell. Biochem. 102: 1458-1471.

CHROMOSOMAL LOCATION

Genetic locus: TRAM2 (human) mapping to 6p12.2.

PRODUCT

TRAM2 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 TRAM2 shRNA Plasmid (h): sc-95376-SH and TRAM2 shRNA (h) Lentiviral Particles: sc-95376-V as alternate gene silencing products.

For independent verification of TRAM2 (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-95376A, sc-95376B and sc-95376C.

RESEARCH USE

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

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

TRAM2 siRNA (h) is recommended for the inhibition of TRAM2 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TRAM2 gene expression knockdown using RT-PCR Primer: TRAM2 (h)-PR: sc-95376-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Fukushima, R., et al. 2018. Overexpression of translocation associated membrane protein 2 leading to cancer-associated matrix metalloproteinase activation as a putative metastatic factor for human oral cancer. J. Cancer 9: 3326-3333.

PROTOCOLS

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