

# TREM-2 siRNA (h): sc-43001

## BACKGROUND

Polycystic lipomembranous osteodysplasia with sclerosing leukoencephalopathy (PLOS), known as "Nasu-Hakola disease", is a recessively inherited disease where individuals display early-onset progressive dementia and bone cysts, which leads to death. Mutations in TYROBP (DAP12), which codes for a membrane receptor component in natural-killer and myeloid cells and mutations in triggering receptor expressed on myeloid cells-2 (TREM-2), correlate well to the pathology of PLOS. TREM-2 is a cell surface receptor on human monocyte-derived dendritic cells that forms a receptor signaling complex with DAP12 and triggers activation of the immune response in macrophages and dendritic cells (DC). The TREM-2/DAP12 complex is a molecular promoter of upregulation of C-C chemokine receptor 7, partial DC maturation and DC survival through activation of protein tyrosine kinases and extracellular signal-regulated kinase. The human chronic inflammatory TREM-2 gene maps to chromosome 6p21.1 and encodes a 230 amino acid protein.

## REFERENCES

1. Bouchon, A., Hernandez-Munain, C., Cella, M. and Colonna, M. 2001. A DAP12-mediated pathway regulates expression of C-C chemokine receptor 7 and maturation of human dendritic cells. *J. Exp. Med.* 194: 1111-1122.
2. Daws, M.R., Lanier, L.L., Seaman, W.E. and Ryan, J.C. 2001. Cloning and characterization of a novel mouse myeloid DAP12-associated receptor family. *Eur. J. Immunol.* 31: 783-791.
3. Paloneva, J., Manninen, T., Christman, G., Hovanes, K., Mandelin, J., Adolfsson, R., Bianchin, M., Bird, T., Miranda, R., Salmaggi, A., Tranebjaerg, L., Konttinen, Y. and Peltonen, L. 2002. Mutations in two genes encoding different subunits of a receptor signaling complex result in an identical disease phenotype. *Am. J. Hum. Genet.* 71: 656-662.
4. Online Mendelian Inheritance in Man, OMIM™. 2002. Johns Hopkins University, Baltimore, MD. MIM Number: 605086. World Wide Web URL: <http://www.ncbi.nlm.nih.gov/omim/>
5. LocusLink Report (LocusID: 54209). <http://www.ncbi.nlm.nih.gov/LocusLink/>

## CHROMOSOMAL LOCATION

Genetic locus: TREM2 (human) mapping to 6p21.1.

## PRODUCT

TREM-2 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TREM-2 shRNA Plasmid (h): sc-43001-SH and TREM-2 shRNA (h) Lentiviral Particles: sc-43001-V as alternate gene silencing products.

For independent verification of TREM-2 (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-43001A, sc-43001B and sc-43001C.

## PROTOCOLS

See our web site at [www.scbt.com](http://www.scbt.com) for detailed protocols and support products.

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

## APPLICATIONS

TREM-2 siRNA (h) is recommended for the inhibition of TREM-2 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  $\mu$ M in 66  $\mu$ 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

TREM-2 (B-3): sc-373828 is recommended as a control antibody for monitoring of TREM-2 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 $\kappa$  BP-HRP: sc-516102 or m-IgG $\kappa$  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 $\kappa$  BP-FITC: sc-516140 or m-IgG $\kappa$  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 TREM-2 gene expression knockdown using RT-PCR Primer: TREM-2 (h)-PR: sc-43001-PR (20  $\mu$ 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.