SANTA CRUZ BIOTECHNOLOGY, INC.

# TCIRG1 siRNA (h): sc-96928

## BACKGROUND

TCIRG1 (T-cell, immune regulator 1, ATPase, $H^+$ transporting, lysosomal $V_0$ subunit A3), also known as V-type proton ATPase 116 kDa subunit a isoform 3, T-cell immune response cDNA7 protein (TIRC7), a3, Vph1, Stv1, Atp6i, Osteoclastic proton pump 116 kDa subunit (OC116), OPTB1, ATP6N1 or ATP6V0A3, is an 830 amino acid multi-pass membrane protein belonging to the V-ATPase 116 kDa subunit family. Functioning as a component of the proton channel of V-ATPases, TCIRG1 is likely involved in T-cell activation and exists as two alternatively spliced isoforms termed isoform long and isoform short, which are expressed in osteoclasts and thymus, respectively. TCIRG1 gene mutations are associated with a rare genetic disease known as osteopetrosis autosomal recessive type 1 (OPTB1), which is characterized by abnormally dense bone that forms as a result of defective resorption of immature bone.

## REFERENCES


1. Heinemann, T., et al. 1999. Genomic organization of the gene coding for TIRC7, a novel membrane protein essential for T cell activation. Genomics 57: 398-406.
2. Van Hul, E., et al. 2002. Localization of the gene causing autosomal dominant osteopetrosis type I to chromosome 11q12-13. J. Bone Miner. Res. 17: 1111-1117.
3. Carn, G., et al. 2002. Sibling pair linkage and association studies between peak bone mineral density and the gene locus for the osteoclast-specific subunit (OC116) of the vacuolar proton pump on chromosome 11p12-13. J. Clin. Endocrinol. Metab. 87: 3819-3824.
4. Sobacchi, C., et al. 2004. Association between a polymorphism affecting an AP1 binding site in the promoter of the TCIRG1 gene and bone mass in women. Calcif. Tissue Int. 74: 35-41.
5. Smirnova, A.S., et al. 2005. Identification of new alternative splice events in the TCIRG1 gene in different human tissues. Biochem. Biophys. Res. Commun. 330: 943-949.
6. Bulwin, G.C., et al. 2006. TIRC7 inhibits T cell proliferation by modulation of CTLA-4 expression. J. Immunol. 177: 6833-6841.


## CHROMOSOMAL LOCATION

Genetic locus: TCIRG1 (human) mapping to 11q13.2.

## PRODUCT

TCIRG1 siRNA (h) is a pool of 2 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 TCIRG1 shRNA Plasmid (h): sc-96928-SH and TCIRG1 shRNA (h) Lentiviral Particles: sc-96928-V as alternate gene silencing products.

For independent verification of TCIRG1 (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-96928A and sc-96928B.

## 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

TCIRG1 siRNA (h) is recommended for the inhibition of TCIRG1 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

TCIRG1 (6H3): sc-293491 is recommended as a control antibody for monitoring of TCIRG1 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 TCIRG1 gene expression knockdown using RT-PCR Primer: TCIRG1 (h)-PR: sc-96928-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. Hiasa, M., et al. 2017. Bone pain induced by multiple myeloma is reduced by targeting V-ATPase and ASIC3. Cancer Res. 77: 1283-1295.


## RESEARCH USE

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