

# TREX-1 siRNA (m): sc-63158

## BACKGROUND

TREX-1 (3' repair exonuclease 1), also known as trophoblast expressed 1, CRV, AGS1, AGS5, DRN3, HERNS or DNase III, is a member of the exonuclease superfamily and belongs to the TREX family. Members of the TREX family are involved in DNA metabolism and repair. TREX-1 is expressed in spleen, liver, thymus, colon, heart, brain and small intestine. It localizes to the nucleus and exists as a homodimer. TREX-1 is an exonuclease and its activity requires magnesium as a cofactor. TREX-1 has a preference for double stranded DNA and functions in the 3'-5' direction yielding nucleoside 5'-phosphates. TREX-1 also interacts with the SET complex (an endoplasmic reticulum (ER)-associated complex) and participates in granzyme A-mediated apoptosis. Mutations or defects in the gene encoding TREX-1 have been associated with a variety of diseases, including systemic lupus erythematosus, chilblain lupus (CHBL), Aicardi-Goutières syndrome type 1 (AGS1) and type 5 (AGS5) and autosomal dominant retinal vasculopathy with cerebral leukodystrophy (CRV).

## REFERENCES

1. Masuda, S., et al. 2005. Recruitment of the human TREX complex to mRNA during splicing. *Genes Dev.* 19: 1512-1517.
2. Crow, Y.J., et al. 2006. Mutations in the gene encoding the 3'-5' DNA exonuclease TREX1 cause Aicardi-Goutières syndrome at the AGS1 locus. *Nat. Genet.* 38: 917-920.
3. Chowdhury, D., et al. 2006. The exonuclease TREX1 is in the SET complex and acts in concert with NM23-H1 to degrade DNA during granzyme A-mediated cell death. *Mol. Cell* 23: 133-142.

## CHROMOSOMAL LOCATION

Genetic locus: *Trex1* (mouse) mapping to 9 F2.

## PRODUCT

TREX-1 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  $\mu$ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TREX-1 shRNA Plasmid (m): sc-63158-SH and TREX-1 shRNA (m) Lentiviral Particles: sc-63158-V as alternate gene silencing products.

For independent verification of TREX-1 (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-63158A, sc-63158B and sc-63158C.

## 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

TREX-1 siRNA (m) is recommended for the inhibition of TREX-1 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  $\mu$ 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

TREX-1 (C-11): sc-133112 is recommended as a control antibody for monitoring of TREX-1 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 TREX-1 gene expression knockdown using RT-PCR Primer: TREX-1 (m)-PR: sc-63158-PR (20  $\mu$ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

## SELECT PRODUCT CITATIONS

1. Yu, Z., et al. 2021. TRIM41 is required to innate antiviral response by polyubiquitinating BCL10 and recruiting NEMO. *Signal Transduct. Target. Ther.* 6: 90.

## RESEARCH USE

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

## PROTOCOLS

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