SANTA CRUZ BIOTECHNOLOGY, INC.

TREX-2 siRNA (h): sc-91164

BACKGROUND

Proper DNA and RNA metabolism requires nucleases which function in DNA replication, recombination and repair, as well as in RNA processing and degradation events. TREX-2 (3' repair exonuclease 2) is a 279 amino acid protein that localizes to the nucleus and belongs to the TREX family of exonuclease proteins. Expressed in stomach, heart, breast, testis, prostate, colon and skeletal muscle, TREX-2 exists as a homodimer that functions as an exonuclease and is thought to play a role in DNA repair. Specifically, TREX-2 uses magnesium to catalyze the 3' to 5' exonucleolytic cleavage of 3' mismatched double stranded DNA, thereby yielding nucleoside 5' phosphates and eliminating mutant DNA. Multiple isoforms of TREX-2 exists due to alternative splicing events. Of transcriptional interest, the gene encoding human TREX-2 (Xq28) is either identical to or adjacent to that of UCHL5IP as most mRNAs encoding UCHL5IP also include the N-terminal part of TREX2.

REFERENCES

1. Mazur, D.J. and Perrino, F.W. 1999. Identification and expression of the TREX-1 and TREX-2 cDNA sequences encoding mammalian 3'→5' exonucleases. J. Biol. Chem. 274: 19655-19660.
2. Mazur, D.J. and Perrino, F.W. 2001. Structure and expression of the TREX-1 and TREX-2 3'→5' exonuclease genes. J. Biol. Chem. 276: 14718-14727.
3. Shevelev, I.V. and Hübscher, U. 2002. The 3' 5' exonucleases. Nat. Rev. Mol. Cell Biol. 3: 364-376.
4. Shevelev, I.V., Ramadan, K. and Hübscher, U. 2002. The TREX-2 3'→5' exonuclease physically interacts with DNA polymerase δ and increases its accuracy. Scientific World Journal 2: 275-281.
5. Perrino, F.W., Krol, A., Harvey, S., Zheng, S.L., Horita, D.A., Hollis, T., Meyers, D.A., Isaacs, W.B. and Xu, J. 2004. Sequence variants in the 3'→5' deoxyribonuclease TREX-2: identification in a genetic screen and effects on catalysis by the recombinant proteins. Adv. Enzyme Regul. 44: 37-49.
6. Perrino, F.W., Harvey, S., McMillin, S. and Hollis, T. 2005. The human TREX-2 3'→5' exonuclease structure suggests a mechanism for efficient nonprocessive DNA catalysis. J. Biol. Chem. 280: 15212-15218.

CHROMOSOMAL LOCATION

Genetic locus: TREX2 (human) mapping to Xq28.

PRODUCT

TREX-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 µM solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see TREX-2 shRNA Plasmid (h): sc-91164-SH and TREX-2 shRNA (h) Lentiviral Particles: sc-91164-V as alternate gene silencing products.

For independent verification of TREX-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-91164A, sc-91164B and sc-9116C.

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

TREX-2 siRNA (h) is recommended for the inhibition of TREX-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 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

TREX-2 (E-4): sc-390890 is recommended as a control antibody for monitoring of TREX-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-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 TREX-2 gene expression knockdown using RT-PCR Primer: TREX-2 (h)-PR: sc-91164-PR (20 µl, 475 bp). 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.