SANTA CRUZ BIOTECHNOLOGY, INC.

TARBP1 siRNA (h): sc-88496

BACKGROUND

Probable methyltransferase TARBP1 (TAR (HIV-1) RNA binding protein 1), also known as TAR RNA-binding protein 1, TAR RNA-binding protein of 185 kDa (TRP-185) or TRM3, belongs to the RNA methyltransferase trmH family. TARBP1 binds to the loop region of TAR RNA in the event of HIV-1 infection, a region which is also bound by RNA polymerase II (Pol II). Research suggests that TARBP1 plays a role in disengaging Pol II from HIV-1 TAR RNA and may work in conjunction with HIV-1 Tat. TRBP2, also known as TARBP2 *(trans*-activation-responsive (HIV-1) RNA binding protein 2), TRBP1 or TRBP, is a nuclear protein that contains three DRBM (double-stranded RNA-binding) domains. TRBP binds between the bulge and the loop of the HIV-1 TAR RNA regulatory element and activates HIV-1 gene expression in synergy with the viral Tat protein. The third DRBM motif in the C-terminus of human TRBP2 can interact with and inhibit PKR activity, thereby increasing HIV-1 long terminal repeat (LTR) expression. In addition, TRBP2 functions as a component of a Dicer-containing complex and associates with the catalytic subunit of the RNA-induced silencing complex (RISC), namely eIF2C2. TRBP2 is essential for Dicer stability and the proper assembly of RISC. This suggests that TRBP2, in association with Dicer, plays an important role in the processing of miRNAs (microRNAs).

REFERENCES

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2. Gatignol, A., et al. 1991. Characterization of a human TAR RNA-binding protein that activates the HIV-1 LTR. Science 251: 1597-1600.
3. Wu-Baer, F., et al. 1995. The cellular factor TRP-185 regulates RNA polymerase II binding to HIV-1 TAR RNA. EMBO J. 14: 5995-6009.
4. Kozak, C.A., et al. 1995. Genetic mapping in human and mouse of the locus encoding TRBP, a protein that binds the TAR region of the human immunodeficiency virus (HIV-1). Genomics 25: 66-72.
5. Wu-Baer, F., et al. 1995. Specific binding of RNA polymerase II to the human immunodeficiency virus *trans*-activating region RNA is regulated by cellular cofactors and Tat. Proc. Natl. Acad. Sci. USA 92: 7153-7157.
6. Wu-Baer, F., et al. 1996. Identification of a group of cellular cofactors that stimulate the binding of RNA polymerase II and TRP-185 to human immunodeficiency virus 1 TAR RNA. J. Biol. Chem. 271: 4201-4208.
7. Dorin, D., et al. 2003. The TAR RNA-binding protein, TRBP, stimulates the expression of TAR-containing RNAs *in vitro* and *in vivo* independently of its ability to inhibit the dsRNA-dependent kinase PKR. J. Biol. Chem. 278: 4440-4448.
8. Chendrimada, T.P., et al. 2005. TRBP recruits the Dicer complex to Ago2 for microRNA processing and gene silencing. Nature 436: 740-744.

CHROMOSOMAL LOCATION

Genetic locus: TARBP1 (human) mapping to 1q42.2.

RESEARCH USE

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

PRODUCT

TARBP1 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 TARBP1 shRNA Plasmid (h): sc-88496-SH and TARBP1 shRNA (h) Lentiviral Particles: sc-88496-V as alternate gene silencing products.

For independent verification of TARBP1 (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-88496A, sc-88496B and sc-88496C.

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

TARBP1 siRNA (h) is recommended for the inhibition of TARBP1 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

TARBP1 (G-3): sc-514838 is recommended as a control antibody for monitoring of TARBP1 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor TARBP1 gene expression knockdown using RT-PCR Primer: TARBP1 (h)-PR: sc-88496-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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