SANTA CRUZ BIOTECHNOLOGY, INC.

TTP siRNA (h): sc-36760

BACKGROUND

Tristetraprolin (TTP), also known as Nup475 and TIS11, is a zinc-binding protein encoded by the immediate-early response gene, Zfp-36. Stimulation of quiescent fibroblasts by mitogens, including platelet derived growth factor and fibroblast growth factor, results in the Serine phosphorylation of TTP and the rapid redistribution of the protein from the nucleus to the cytoplasm. *In vitro* studies have demonstrated that TTP is phosphorylated by p42 MAP kinase, indicating that the activity of TTP may be regulated by the MAP kinase pathway *in vivo*. Knockout mice deficient in TTP develop autoimmunity, inflammatory arthritis and dermatitis. These conditions can be reversed by blocking the activity of the inflammatory mediator, tumor necrosis factor-α (TNF-α), suggesting that TTP may function to negatively regulate the expression of TNF-α.

REFERENCES

1. Taylor, G.A., et al. 1991. The human TTP protein: sequence, alignment with related proteins, and chromosomal localization of the mouse and human genes. Nucleic Acids Res. 19: 3454.
2. Kaneda, N., et al. 1992. Sequence of a rat TIS11 cDNA, an immediate early gene induced by growth factors and phorbol esters. Gene 118: 289-291.

CHROMOSOMAL LOCATION

Genetic locus: ZFP36 (human) mapping to 19q13.2.

PRODUCT

TTP siRNA (h) is a pool of 4 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 TTP shRNA Plasmid (h): sc-36760-SH and TTP shRNA (h) Lentiviral Particles: sc-36760-V as alternate gene silencing products.

For independent verification of TTP (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-36760A, sc-36760B, sc-36760C and sc-36760D.

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

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

TTP (A-8): sc-374305 is recommended as a control antibody for monitoring of TTP 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 TTP gene expression knockdown using RT-PCR Primer: TTP (h)-PR: sc-36760-PR (20 µl, 494 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Tsai, C.S., et al. 2009. TNF-α inhibits Toll-like receptor 4 expression on monocytic cells via tristetraprolin during cardiopulmonary bypass. Shock 32: 40-48.
2. Lee, H.H., et al. 2012. Tristetraprolin down-regulates IL-17 through mRNA destabilization. FEBS Lett. 586: 41-46.
3. Chowdhury, S., et al. 2013. IL-17 attenuates degradation of ARE-mRNAs by changing the cooperation between AU-binding proteins and microRNA16. PLoS Genet. 9: e1003747.
4. Ryu, J., et al. 2015. Resveratrol induces glioma cell apoptosis through activation of tristetraprolin. Mol. Cells 38: 991-997.
5. Barrios-García, T., et al. 2016. Nuclear tristetraprolin acts as a corepressor of multiple steroid nuclear receptors in breast cancer cells. Mol. Genet. Metab. Rep. 7: 20-26.
6. Vo, M.T., et al. 2017. Tristetraprolin inhibits mitochondrial function through suppression of α-synuclein expression in cancer cells. Oncotarget 8: 41903-41920.
7. Lee, S.R., et al. 2018. Tristetraprolin activation by resveratrol inhibits the proliferation and metastasis of colorectal cancer cells. Int. J. Oncol. 53: 1269-1278.
8. Kim, D.J., et al. 2019. Tristetraprolin-mediated hexokinase 2 expression regulation contributes to glycolysis in cancer cells. Mol. Biol. Cell 30: 542-553.

RESEARCH USE

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