SANTA CRUZ BIOTECHNOLOGY, INC.

TRB-3 siRNA (h): sc-44426

BACKGROUND

TRB-3 (tribbles 3), also called NIPK (neuronal cell death-inducible protein kinase) disrupts Insulin signaling by binding directly to Akt kinases and blocking their activation. TRB3 binds to ATF4, inhibiting its transcriptional activation activity, and regulates activation of MAP kinases. In the liver, TRB-3 is a target for PPAR-α. Amounts of TRB3 RNA and protein are higher in livers of diabetic mice compared with those in wildtype mice. TRB3 contributes to Insulin resistance in individuals with susceptibility to type II diabetes. Highest expression of TRB-3 is in liver, pancreas, peripheral blood leukocytes and bone marrow.

CHROMOSOMAL LOCATION

Genetic locus: TRIB3 (human) mapping to 20p13.

PRODUCT

TRB-3 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 TRB-3 shRNA Plasmid (h): sc-44426-SH and TRB-3 shRNA (h) Lentiviral Particles: sc-44426-V as alternate gene silencing products.

For independent verification of TRB-3 (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-44426A, sc-44426B and sc-44426C.

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

TRB-3 siRNA (h) is recommended for the inhibition of TRB-3 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

TRB-3 (D-4): sc-365842 is recommended as a control antibody for monitoring of TRB-3 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 TRB-3 gene expression knockdown using RT-PCR Primer: TRB-3 (h)-PR: sc-44426-PR (20 µl, 428 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Aynaud, M.M., et al. 2012. Human Tribbles 3 protects nuclear DNA from cytidine deamination by APOBEC3A. J. Biol. Chem. 287: 39182-39192.
2. Tang, B., et al. 2015. Shiga toxins induce autophagic cell death in intestinal epithelial cells via the endoplasmic reticulum stress pathway. Autophagy 11: 344-354.
3. Armstrong, J.L., et al. 2015. Exploiting cannabinoid-induced cytotoxic autophagy to drive melanoma cell death. J. Invest. Dermatol. 135: 1629-1637.
4. Zhu, P., et al. 2017. *Helicobacter pylori* VacA induces autophagic cell death in gastric epithelial cells via the endoplasmic reticulum stress pathway. Cell Death Dis. 8: 3207.
5. Choi, J., et al. 2019. Involvement of endoplasmic reticulum stress in regulation of endometrial stromal cell invasiveness: possible role in pathogenesis of endometriosis. Mol. Hum. Reprod. 25: 101-110.
6. Fan, J., et al. 2021. Trb3 controls mesenchymal stem cell lineage fate and enhances bone regeneration by scaffold-mediated local gene delivery. Biomaterials 264: 120445.
7. Montori-Grau, M., et al. 2022. Endoplasmic reticulum stress downregulates PGC-1α in skeletal muscle through ATF4 and an mTOR-mediated reduction of CRTC2. Cell Commun. Signal. 20: 53.
8. Huang, Y.H., et al. 2025. Tribbles pseudokinase 3 drives cancer stemness in oral squamous cell carcinoma cells by supporting the expression levels of SOX2 and EGFR. Int. J. Mol. Med. 55: 44.

RESEARCH USE

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