SANTA CRUZ BIOTECHNOLOGY, INC.

tuberin siRNA (h): sc-36762

BACKGROUND

Tuberous sclerosis (TSC) is a human genetic disorder characterized by mental retardation and the widespread development of benign and infrequently malignant tumors in a variety of tissues. Two different genetic loci have been linked to TSC; one of these loci, the tuberous sclerosis-2 gene (TSC2), encodes a protein 1,784 amino acids in length, called tuberin. Tuberin exhibits a region of limited homology to the catalytic domain of Rap1 GAP. Subcellular fractionation studies have shown tuberin to be predominantly localized in membrane fractions. Tuberin is capable of stimulating the intrinsic GTPase activity of Rap 1A, but not Rap 2, H-Ras, Rac or Rho. TSC2 maps to human chromosome 16p13.3 and is associated with several intragenic mutations in affected patients. The mouse homolog of the tuberin gene maps to chromosome 17 A3.3.

CHROMOSOMAL LOCATION

Genetic locus: TSC2 (human) mapping to 16p13.3.

PRODUCT

tuberin 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 tuberin shRNA Plasmid (h): sc-36762-SH and tuberin shRNA (h) Lentiviral Particles: sc-36762-V as alternate gene silencing products.

For independent verification of tuberin (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-36762A, sc-36762B and sc-36762C.

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

tuberin siRNA (h) is recommended for the inhibition of tuberin 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.

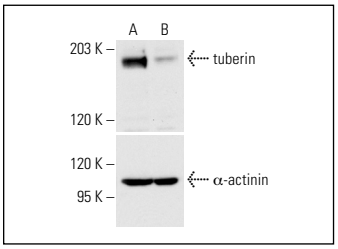
GENE EXPRESSION MONITORING

tuberin (B-5): sc-271314 is recommended as a control antibody for monitoring of tuberin 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 tuberin gene expression knockdown using RT-PCR Primer: tuberin (h)-PR: sc-36762-PR (20 µl, 419 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

DATA



tuberin siRNA (h): sc-36762. Western blot analysis of tuberin expression in non-transfected control (**A**) and tuberin siRNA transfected (**B**) HeLa cells. Blot probed with tuberin (C-20): sc-893. α-actinin (H-2): sc-17829 used as specificity and loading control.

SELECT PRODUCT CITATIONS

1. Han, S., et al. 2007. Rosiglitazone, an agonist of PPARγ, inhibits non-small cell carcinoma cell proliferation in part through activation of tumor sclerosis complex-2. PPAR Res. 2007: 29632.
2. Chen, W., et al. 2014. Rapamycin enhances cetuximab cytotoxicity by inhibiting mTOR-mediated drug resistance in mesenchymal hepatoma cells. Cancer Biol. Ther. 15: 992-999.
3. Yun, S.M., et al. 2016. Melatonin enhances arsenic trioxide-induced cell death via sustained upregulation of Redd1 expression in breast cancer cells. Mol. Cell. Endocrinol. 422: 64-73.
4. Shi, Q., et al. 2018. Nox4 is a target for tuberin deficiency syndrome. Sci. Rep. 8: 3781.
5. Wu, Y.F., et al. 2020. Inactivation of MTOR promotes autophagy-mediated epithelial injury in particulate matter-induced airway inflammation. Autophagy 16: 435-450.
6. Kong, Y., et al. 2023. Lipophagy-mediated cholesterol synthesis inhibition is required for the survival of hepatocellular carcinoma under glutamine deprivation. Redox Biol. 63: 102732.

RESEARCH USE

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