SANTA CRUZ BIOTECHNOLOGY, INC.

LKB1 siRNA (m): sc-35817

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The Power to Question

BACKGROUND

Peutz-Jeghers syndrome (PJS) is a rare hereditary disease characterized by melanocytic macules lips, gastrointestinal hamartomatous polyps and an increased risk for many classes of cancer. LKB1 (also designated STK11 and PJS) has been identified as the gene mutated in PJS. LKB1 is a 433 amino acid serine/threonine kinase with strong homology to the *Xenopus* cytoplasmic protein kinase XEEK1 and weaker similarity to many other protein kinases. LKB1 is ubiquitously expressed and many frameshift, deletion and splicing mutations have been identified in PJS patients. Despite the increased risk of cancer for PJS patients, LKB1 does not appear to play a major role in colorectal, testicular or breast cancers.

CHROMOSOMAL LOCATION

Genetic locus: Stk11 (mouse) mapping to 10 C1.

PRODUCT

LKB1 siRNA (m) 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 LKB1 shRNA Plasmid (m): sc-35817-SH and LKB1 shRNA (m) Lentiviral Particles: sc-35817-V as alternate gene silencing products.

For independent verification of LKB1 (m) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-35817A, sc-35817B and sc-35817C.

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

LKB1 siRNA (m) is recommended for the inhibition of LKB1 expression in mouse 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

LKB1 (Ley 37D/G6): sc-32245 is recommended as a control antibody for monitoring of LKB1 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 LKB1 gene expression knockdown using RT-PCR Primer: LKB1 (m)-PR: sc-35817-PR (20 µl, 551 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chau, M.D., et al. 2010. Fibroblast growth factor 21 regulates energy metabolism by activating the AMPK-SIRT1-PGC-1α pathway. Proc. Natl. Acad. Sci. USA 107: 12553-12558.
2. Hsu, Y.C., et al. 2010. Activation of the AMP-activated protein kinase-p38 MAP kinase pathway mediates apoptosis induced by conjugated linoleic acid in p53-mutant mouse mammary tumor cells. Cell. Signal. 22: 590-599.
3. Chen, M.B., et al. 2011. Activation of AMP-activated protein kinase is involved in vincristine-induced cell apoptosis in B16 melanoma cell. J. Cell. Physiol. 226: 1915-1925.
4. Kundu, S., et al. 2014. Hydrogen sulfide mitigates hyperglycemic remodeling via liver kinase B1-adenosine monophosphate-activated protein kinase signaling. Biochim. Biophys. Acta 1843: 2816-2826.
5. Deng, Y., et al. 2019. Sauchinone suppresses FcεRI-mediated mast cell signaling and anaphylaxis through regulation of LKB1/AMPK axis and SHP-1-Syk signaling module. Int. Immunopharmacol. 74: 105702.
6. Xu, Y., et al. 2019. LKB1 suppresses androgen synthesis in a mouse model of hyperandrogenism via IGF-1 signaling. FEBS Open Bio 9: 1817-1825.
7. Balnis, J., et al. 2020. AMP-activated protein kinase (AMPK) at the crossroads between CO_2 retention and skeletal muscle dysfunction in chronic obstructive pulmonary disease (COPD). Int. J. Mol. Sci. 21: 955.
8. Wani, A., et al. 2021. Crocetin promotes clearance of amyloid-β by inducing autophagy via the STK11/LKB1-mediated AMPK pathway. Autophagy 17: 3813-3832.

RESEARCH USE

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