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LKB1 siRNA (r): sc-270074

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 (rat) mapping to 7q11.

PRODUCT

LKB1 siRNA (r) is a pool of 2 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see LKB1 shRNA Plasmid (r): sc-270074-SH and LKB1 shRNA (r) Lentiviral Particles: sc-270074-V as alternate gene silencing products.

For independent verification of LKB1 (r) gene silencing results, we also provide the individual siRNA duplex components. Each is available as 3.3 nmol of lyophilized siRNA. These include: sc-270074A and sc-270074B.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

LKB1 siRNA (r) is recommended for the inhibition of LKB1 expression in rat 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 μ M in 66 μ l. 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-IgG κ BP-HRP: sc-516102 or m-IgG κ 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-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 (r)-PR: sc-270074-PR (20 μ l, 592 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

- Sung, J.Y., et al. 2011. AMPK induces vascular smooth muscle cell senescence via LKB1 dependent pathway. *Biochem. Biophys. Res. Commun.* 413: 143-148.
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- Sung, J.Y. and Choi, H.C. 2012. Nifedipine inhibits vascular smooth muscle cell proliferation and reactive oxygen species production through AMP-activated protein kinase signaling pathway. *Vascul. Pharmacol.* 56: 1-8.
- Lee, K.Y. and Choi, H.C. 2013. Acetylcholine-induced AMP-activated protein kinase activation attenuates vasoconstriction through an LKB1-dependent mechanism in rat aorta. *Vascul. Pharmacol.* 59: 96-102.
- Lee, K.Y., et al. 2016. Genistein-induced LKB1-AMPK activation inhibits senescence of VSMC through autophagy induction. *Vascul. Pharmacol.* 81: 75-82.
- Liao, Y., et al. 2018. Pravastatin protects against avascular necrosis of femoral head via autophagy. *Front. Physiol.* 9: 307.
- Kim, S.G., et al. 2018. Quercetin-induced AMP-activated protein kinase activation attenuates vasoconstriction through LKB1-AMPK signaling pathway. *J. Med. Food* 21: 146-153.
- Huang, Y., et al. 2019. Resveratrol prevents sarcopenic obesity by reversing mitochondrial dysfunction and oxidative stress via the PKA/LKB1/AMPK pathway. *Aging* 11: 2217-2240.

RESEARCH USE

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