SANTA CRUZ BIOTECHNOLOGY, INC.

LKLF siRNA (h): sc-35818

BACKGROUND

The Krüppel-type zinc-finger transcription factors comprise a conserved family of DNA binding proteins that are important in developmental regulation. The Krüppel zinc-finger transcription factor was initially identified in *Drosophila* as a segmentation gene. Krüppel-like factors that have been characterized in mammals include erythroid Krüppel-like transcription factor (EKLF), lung Krüppel-like transcription factor (LKLF) and gut Krüppel-like transcription factor (GKLF). EKLF is expressed principally in erythroid tissues, and LKLF expression is limited to the lung. GKLF is found predominantly in gut and has been shown to be expressed during growth arrest. In a developing mouse embryo, LKLF is necessary for normal tunica media formation and blood vessel stabilization. LKLF is also sufficient to program quiescence in T cells by negatively regulating the c-Myc-dependent pathway. The gene for human LKLF maps to chromosome 19p13.11.

REFERENCES

1. Schuh, R., et al. 1986. A conserved family of nuclear proteins containing structural elements of the finger protein encoded by Krüppel, a *Drosophila* segmentation gene. Cell 47: 1025-1032.
2. Ollo, R. and Maniatis, T. 1987. *Drosophila* Krüppel gene product produced in a baculovirus expression system is a nuclear phosphoprotein that binds to DNA. Proc. Natl. Acad. Sci. USA 84: 5700-5704.

CHROMOSOMAL LOCATION

Genetic locus: KLF2 (human) mapping to 19p13.11.

PRODUCT

LKLF 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 LKLF shRNA Plasmid (h): sc-35818-SH and LKLF shRNA (h) Lentiviral Particles: sc-35818-V as alternate gene silencing products.

For independent verification of LKLF (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-35818A, sc-35818B and sc-35818C.

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

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

GKLF/EKLF/LKLF (F-8): sc-166238 is recommended as a control antibody for monitoring of LKLF 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 LKLF gene expression knockdown using RT-PCR Primer: LKLF (h)-PR: sc-35818-PR (20 µl, 497 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, G.H., et al. 2020. Betulinic acid induces eNOS expression via the AMPK-dependent KLF2 signaling pathway. J. Agric. Food Chem. 68: 14523-14530.
2. Song Park, J., et al. 2021. G protein-coupled estrogen receptor regulates the KLF2-dependent eNOS expression by activating of Ca^{2+} and EGFR signaling pathway in human endothelial cells. Biochem. Pharmacol. 192: 114721.
3. Ma, C., et al. 2022. Calycosin ameliorates atherosclerosis by enhancing autophagy via regulating the interaction between KLF2 and MLKL in $apoE^{-/-}$ mice. Br. J. Pharmacol. 179: 252-269.
4. Bae, E., et al. 2022. Renoprotective effect of KLF2 on glomerular endothelial dysfunction in hypertensive nephropathy. Cells 11: 762.
5. Wang, Y., et al. 2022. mTOR contributes to endothelium-dependent vasorelaxation by promoting eNOS expression and preventing eNOS uncoupling. Commun. Biol. 5: 726.
6. Masroni, M.S.B., et al. 2023. Dynamic altruistic cooperation within breast tumors. Mol. Cancer 22: 206.

RESEARCH USE

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

PROTOCOLS

See our web site at www.scbt.com for detailed protocols and support products.