

MULK siRNA (h): sc-89394

BACKGROUND

MULK (multi-substrate lipid kinase), also known as AGK (acylglycerol kinase), is a 422 amino acid protein that localizes to the mitochondrial membrane and is highly expressed in muscle, heart, kidney and brain. Containing one DAGKc domain, MULK acts as a lipid kinase that phosphorylates monoacylglycerol and diacylglycerol to form lysophosphatidic acid (LPA) and phosphatidic acid (PA), respectively. When overexpressed, MULK increases the production and secretion of LPA, thereby transactivating EGFR and ERK signaling pathways, which in turn lead to increased cell growth. Due to its involvement of LPA overproduction, MULK is implicated in the initiation and progression of prostate cancer. MULK utilizes magnesium as a cofactor and exists as two alternatively spliced isoforms. MULK is encoded by a gene mapping to 7q34.

REFERENCES

1. Waggoner, D.W., et al. 2004. MULK, a eukaryotic multi-substrate lipid kinase. *J. Biol. Chem.* 279: 38228-38235.
2. Spiegel, S., et al. 2005. Critical role of acylglycerol kinase in epidermal growth factor-induced mitogenesis of prostate cancer cells. *Biochem. Soc. Trans.* 33: 1362-1365.
3. Bektas, M., et al. 2005. A novel acylglycerol kinase that produces lysophosphatidic acid modulates cross talk with EGFR in prostate cancer cells. *J. Cell Biol.* 169: 801-811.
4. Epand, R.M., et al. 2007. Substrate chirality and specificity of diacylglycerol kinases and the multisubstrate lipid kinase. *Biochemistry* 46: 14225-14231.

CHROMOSOMAL LOCATION

Genetic locus: AGK (human) mapping to 7q34.

PRODUCT

MULK 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see MULK shRNA Plasmid (h): sc-89394-SH and MULK shRNA (h) Lentiviral Particles: sc-89394-V as alternate gene silencing products.

For independent verification of MULK (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-89394A, sc-89394B and sc-89394C.

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

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

MULK (F-3): sc-374390 is recommended as a control antibody for monitoring of MULK 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 MULK gene expression knockdown using RT-PCR Primer: MULK (h)-PR: sc-89394-PR (20 μ l). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Zhao, Q., et al. 2020. Acylglycerol kinase promotes the stemness of nasopharyngeal carcinoma cells by promoting β -catenin translocation to the nucleus through activating PI3K/Akt pathway. *Environ. Toxicol.* 35: 1299-1307.

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.