SANTA CRUZ BIOTECHNOLOGY, INC.

KCNF1 siRNA (h): sc-94734

BACKGROUND

KCNF1 (potassium voltage-gated channel subfamily F member 1) is a multi-pass membrane-bound protein that acts as an ion channel and is generally expressed as a heterotetramer of potassium channeling proteins. Formerly known as kH1, KCNF1 is usually found as a heteromer with three other potassium channel proteins, KCNG3, KV6.3 and KCNV2. As a potassium channel protein, KCNF1 plays a role in regulating apoptosis and proliferation of pulmonary artery smooth muscle (PASM) cells. Bone morphogenetic proteins (BMPs) restrict proliferation and can induce apoptosis in normal human PASM cells and will upregulate expression of KCNF1 in PASM cells *in vitro*. KCNF1 is expressed in heart, brain, liver, skeletal muscle, kidney and pancreas.

REFERENCES

1. Su, K., et al. 1997. Isolation, characterization, and mapping of two human potassium channels. Biochem. Biophys. Res. Commun. 241: 675-681.
2. Lubec, G. and Sohn, S.Y. 2003. RNA microarray analysis of channels and transporters in normal and fetal Down syndrome (trisomy 21) brain. J. Neural Transm. Suppl. 67: 215-224.
3. Fantozzi, I., et al. 2006. Bone morphogenetic protein-2 upregulates expression and function of voltage-gated K^+ channels in human pulmonary artery smooth muscle cells. Am. J. Physiol. Lung Cell. Mol. Physiol. 291: L993-L1004.
4. Hassan, M.J., et al. 2006. A novel autosomal recessive non-syndromic hearing impairment locus (DFNB47) maps to chromosome 2p25.1-p24.3. Hum. Genet. 118: 605-610.
5. Judge, S.I., et al. 2007. Potassium channel blockers and openers as CNS neurologic therapeutic agents. Recent Pat. CNS Drug Discov. 2: 200-228.
6. Knight, H.M., et al. 2008. Homozygosity mapping in a family presenting with schizophrenia, epilepsy and hearing impairment. Eur. J. Hum. Genet. 16: 750-758.

CHROMOSOMAL LOCATION

Genetic locus: KCNF1 (human) mapping to 2p25.1.

PRODUCT

KCNF1 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 KCNF1 shRNA Plasmid (h): sc-94734-SH and KCNF1 shRNA (h) Lentiviral Particles: sc-94734-V as alternate gene silencing products.

For independent verification of KCNF1 (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-94734A, sc-94734B and sc-94734C.

PROTOCOLS

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

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

KCNF1 siRNA (h) is recommended for the inhibition of KCNF1 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

KCNF1 (56-I): sc-81881 is recommended as a control antibody for monitoring of KCNF1 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 KCNF1 gene expression knockdown using RT-PCR Primer: KCNF1 (h)-PR: sc-94734-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chen, C.Y., et al. 2023. KCNF1 promotes lung cancer by modulating ITGB4 expression. Cancer Gene Ther. 30: 414-423.

RESEARCH USE

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