SANTA CRUZ BIOTECHNOLOGY, INC.

KLC1 siRNA (m): sc-43881

BACKGROUND

The kinesin family of motor proteins comprise at least two forms of conventional kinesin. They are encoded by different genes and designated as ubiquitous kinesin, which is expressed in all cells and tissues, and neuronal kinesin, which is expressed exclusively in neuronal cells. Conventional kinesin, kinesin-I, is a heterotetramer of two kinesin heavy chain subunits and two kinesin light chain subunits. While the kinesin heavy chain contains motor activity, evidence suggests that the kinesin light chain is involved in either modulation of kinesin heavy chain activity or in cargo binding. The motor protein kinesin is a heterotetramer composed of two heavy chains and two light chains. Kinesin motor activity is dependent on the presence of ATP and microtubules.

REFERENCES

1. Vignali, G., et al. 1997. Expression of neuronal kinesin heavy chain is developmentally regulated in the central nervous system of the rat. J. Neurochem. 69: 1840-1849.
2. Diefenbach, R.J., et al. 1998. The C-terminal region of the stalk domain of ubiquitous human kinesin heavy chain contains the binding site for kinesin light chain. Biochemistry 37: 16663-16670.
3. Rahman, A., et al. 1998. Two kinesin light chain genes in mice. Identification and characterization of the encoded proteins. J. Biol. Chem. 273: 15395-15403.
4. Rahman, A., et al. 1999. Defective kinesin heavy chain behavior in mouse kinesin light chain mutants. J. Cell Biol. 146: 1277-1288.

CHROMOSOMAL LOCATION

Genetic locus: Klc1 (mouse) mapping to 12 F1.

PRODUCT

KLC1 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 KLC1 shRNA Plasmid (m): sc-43881-SH and KLC1 shRNA (m) Lentiviral Particles: sc-43881-V as alternate gene silencing products.

For independent verification of KLC1 (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-43881A, sc-43881B and sc-43881C.

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

KLC1 siRNA (m) is recommended for the inhibition of KLC1 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

KLC1 (L2): sc-58776 is recommended as a control antibody for monitoring of KLC1 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 KLC1 gene expression knockdown using RT-PCR Primer: KLC1 (m)-PR: sc-43881-PR (20 µl, 507 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Mandal, M., et al. 2011. Impaired AMPA receptor trafficking and function by mutant Huntingtin. J. Biol. Chem. 286: 33719-33728.
2. Wobst, H., et al. 2015. Kinesin-1 promotes post-Golgi trafficking of NCAM140 and NCAM180 to the cell surface. J. Cell Sci. 128: 2816-2829.

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.