SANTA CRUZ BIOTECHNOLOGY, INC.

KIF14 siRNA (m): sc-60883

BACKGROUND

Kinesin is a cytoskeletal motor protein involved in axonal transport and cell division. The kinesin superfamily proteins (KIFs) are microtubule-dependent molecular motors that transport membranous organelles and protein complexes in a microtubule- and ATP-dependent manner. Cells use KIFs to tightly control the direction, destination and speed of transportation of a variety of important functional molecules, including mRNA. KIFs are involved in neuronal function and development. Kinesin family member 14 (KIF14) is an overexpressed potential oncogene in the 1q region of genomic gain in breast cancer cell lines associated with poor prognosis breast cancer. The gain of chromosome 1q likely reflects oncogene amplification. KIF14 is a potential therapeutic target and indicator of oncogenesis.

REFERENCES

1. Howard, J. 1996. The movement of kinesin along microtubules. Annu. Rev. Physiol. 58: 703-729.
2. Miki, H., et al. 2001. All kinesin superfamily protein, KIF, genes in mouse and human. Proc. Natl. Acad. Sci. USA 98: 7004-7011.
3. Mburu, P., et al. 2003. Defects in Whirlin, a PDZ domain molecule involved in stereocilia elongation, cause deafness in the whirler mouse and families with DFNB31. Natl. Genet. 34: 421-428.
4. Zhu, C., et al. 2005. Functional analysis of human microtubule-based motor proteins, the kinesins and dyneins, in mitosis/cytokinesis using RNA interference. Mol. Biol. Cell 16: 3187-3199.
5. Corson, T.W., et al. 2005. KIF14 is a candidate oncogene in the 1q minimal region of genomic gain in multiple cancers. Oncogene 24: 4741-4753.
6. Corson, T.W., et al. 2006. KIF14 mRNA expression is a predictor of grade and outcome in breast cancer. Int. J. Cancer 119: 1088-1094.
7. Gruneberg, U., et al. 2006. KIF14 and citron kinase act together to promote efficient cytokinesis. J. Cell Biol. 172: 363-372.
8. Carleton, M., et al. 2006. RNA interference-mediated silencing of mitotic kinesin KIF14 disrupts cell cycle progression and induces cytokinesis failure. Mol. Cell. Biol. 26: 3853-3863.

CHROMOSOMAL LOCATION

Genetic locus: Kif14 (mouse) mapping to 1 F.

PRODUCT

KIF14 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 KIF14 shRNA Plasmid (m): sc-60883-SH and KIF14 shRNA (m) Lentiviral Particles: sc-60883-V as alternate gene silencing products.

For independent verification of KIF14 (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-60883A, sc-60883B and sc-60883C.

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

KIF14 siRNA (m) is recommended for the inhibition of KIF14 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

KIF14 (E-3): sc-365553 is recommended as a control antibody for monitoring of KIF14 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 KIF14 gene expression knockdown using RT-PCR Primer: KIF14 (m)-PR: sc-60883-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

PROTOCOLS

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