SANTA CRUZ BIOTECHNOLOGY, INC.

Myosin VI siRNA (h): sc-37133

BACKGROUND

Myosin VI (MYO6), a molecular motor involved in intracellular vesicle and organelle transport, is the only Myosin motor that binds to the pointed end of Actin. This unique Myosin has only one light chain in the lever-arm domain and has highly irregular stepping with a wide range of step sizes, unlike that of other characterized Myosins. It associates with Clathrin-coated vesicles and disabled 2, indicating a role for Myosin VI in endocytosis. Mouse Myosin VI is expressed within the sensory hair cells of the cochlea. Human Myosin VI is mapped to the centromeric region of chromosome 6q14.1, a region that shows syntenic homology with the corresponding mouse chromosome 9 E1 region, where the Snell's Waltzer mutation is located. The behavioral effects of the mouse Snell's Waltzer mutation are lack of responsiveness to sound, hyperactivity, head tossing and circling, due to the disorganization and fusing of stereocilia bundles within the inner ear. Defects of Myosin VI cause autosomal dominant nonsyndromic sensori-neural deafness in humans. Human Myosin VI is expressed in fetal cochlea and brain, as well as in adult brain.

REFERENCES

1. Avraham, K.B., et al. 1997. Characterization of unconventional MYO6, the human homologue of the gene responsible for deafness in Snell's Waltzer mice. Hum. Mol. Genet. 6: 1225-1231.
2. Wells, A.L., et al. 1999. Myosin VI is an Actin-based motor that moves backwards. Nature 401: 505-508.
3. Self, T., et al. 1999. Role of Myosin VI in the differentiation of cochlear hair cells. Dev. Biol. 214: 331-341.
4. Ahituv, N., et al. 2000. Genomic structure of the human unconventional Myosin VI gene. Gene 261: 269-275.
5. Buss, F., et al. 2001. Myosin VI isoform localized to clathrin-coated vesicles with a role in clathrin-mediated endocytosis. EMBO J. 20: 3676-3684.
6. Rock, R.S., et al. 2001. Myosin VI is a processive motor with a large step size. Proc. Natl. Acad. Sci. USA 98: 13655-13659.
7. Melchionda, S., et al. 2001. MYO6, the human homologue of the gene responsible for deafness in Snell's waltzer mice, is mutated in autosomal dominant nonsyndromic hearing loss. Am. J. Hum. Genet. 69: 635-640.

CHROMOSOMAL LOCATION

Genetic locus: MYO6 (human) mapping to 6q14.1.

PRODUCT

Myosin VI 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 Myosin VI shRNA Plasmid (h): sc-37133-SH and Myosin VI shRNA (h) Lentiviral Particles: sc-37133-V as alternate gene silencing products.

For independent verification of Myosin VI (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-37133A, sc-37133B and sc-37133C.

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

Myosin VI siRNA (h) is recommended for the inhibition of Myosin VI 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

Myosin VI (A-9): sc-393558 is recommended as a control antibody for monitoring of Myosin VI 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 Myosin VI gene expression knockdown using RT-PCR Primer: Myosin VI (h)-PR: sc-37133-PR (20 µl, 431 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Liao, Y.W., et al. 2013. Myosin VI contributes to maintaining epithelial barrier function. J. Biomed. Sci. 20: 68.

RESEARCH USE

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