SANTA CRUZ BIOTECHNOLOGY, INC.

Myosin XVA siRNA (h): sc-93769

BACKGROUND

Myosins are highly conserved, ubiquitously expressed proteins that interact with Actin to generate the force for cellular movements. The human genome encodes over 40 different Myosin genes which are divided into distinct classes, the most notable of which are the conventional Myosins (class II) and the unconventional Myosins (classes I and III through XVIII). Myosin XVA, also designated unconventional Myosin-15 or MYO15A, is a 3,530 amino acid cytoplasmic protein that is required for Actin organization in hair cells of the cochlea. While highly expressed in pituitary, Myosin XVA is found at lower levels in placenta, lung, liver, kidney, skeletal muscle and pancreas. Myosin XVA contains one FERM domain, an SH3 domain, three IQ domains, two MyTH4 domains and a single Myosin head-like domain.

REFERENCES

1. Wang, A., Liang, Y., Fridell, R.A., Probst, F.J., Wilcox, E.R., Touchman, J.W., Morton, C.C., Morell, R.J., Noben-Trauth, K., Camper, S.A. and Friedman, T.B. 1998. Association of unconventional myosin MYO15 mutations with human nonsyndromic deafness DFNB3. Science 280: 1447-1451.
2. Anderson, D.W., Probst, F.J., Belyantseva, I.A., Fridell, R.A., Beyer, L., Martin, D.M., Wu, D., Kachar, B., Friedman, T.B., Raphael, Y. and Camper, S.A. 2000. The motor and tail regions of myosin XV are critical for normal structure and function of auditory and vestibular hair cells. Hum. Mol. Genet. 9: 1729-1738.
3. Karolyi, I.J., Probst, F.J., Beyer, L., Odeh, H., Dootz, G., Cha, K.B., Martin, D.M., Avraham, K.B., Kohrman, D., Dolan, D.F., Raphael, Y. and Camper, S.A. 2003. Myo15 function is distinct from Myo6, Myo7a and pirouette genes in development of cochlear stereocilia. Hum. Mol. Genet. 12: 2797-2805.
4. Delprat, B., Michel, V., Goodyear, R., Yamasaki, Y., Michalski, N., El-Amraoui, A., Perfettini, I., Legrain, P., Richardson, G., Hardelin, J.P. and Petit, C. 2005. Myosin XVa and whirlin, two deafness gene products required for hair bundle growth, are located at the stereocilia tips and interact directly. Hum. Mol. Genet. 14: 401-410.
5. Belyantseva, I.A., Boger, E.T., Naz, S., Frolenkov, G.I., Sellers, J.R., Ahmed, Z.M., Griffith, A.J. and Friedman, T.B. 2005. Myosin-XVa is required for tip localization of whirlin and differential elongation of hair-cell stereocilia. Nat. Cell Biol. 7: 148-156.
6. Kalay, E., Uzumcu, A., Krieger, E., Caylan, R., Uyguner, O., Ulubil-Emiroglu, M., Erdol, H., Kayserili, H., Hafiz, G., Başerer, N., Heister, A.J., Hennies, H.C., Nürnberg, P., Basaran, S., Brunner, H.G., Cremers, C.W., et al. 2007. MYO15A (DFNB3) mutations in Turkish hearing loss families and functional modeling of a novel motor domain mutation. Am. J. Med. Genet. A 143A: 2382-2389.
7. Nal, N., Ahmed, Z.M., Erkal, E., Alper, O.M., Lüleci, G., Dinç, O., Waryah, A.M., Ain, Q., Tasneem, S., Husnain, T., Chattaraj, P., Riazuddin, S., Boger, E., Ghosh, M., Kabra, M., Riazuddin, S., Morell, R.J. and Friedman, T.B. 2007. Mutational spectrum of MYO15A: the large N-terminal extension of Myosin XVA is required for hearing. Hum. Mutat. 28: 1014-1019.
8. Online Mendelian Inheritance in Man, OMIM™. 2008. Johns Hopkins University, Baltimore, MD. MIM Number: 602666. World Wide Web URL: http://www.ncbi.nlm.nih.gov/omim/

CHROMOSOMAL LOCATION

Genetic locus: MYO15A (human) mapping to 17p11.2.

PRODUCT

Myosin XVA 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 XVA shRNA Plasmid (h): sc-93769-SH and Myosin XVA shRNA (h) Lentiviral Particles: sc-93769-V as alternate gene silencing products.

For independent verification of Myosin XVA (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-93769A, sc-93769B and sc-93769C.

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 XVA siRNA (h) is recommended for the inhibition of Myosin XVA 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.

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Myosin XVA gene expression knockdown using RT-PCR Primer: Myosin XVA (h)-PR: sc-93769-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

RESEARCH USE

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