SANTA CRUZ BIOTECHNOLOGY, INC.

MYH9 siRNA (h): sc-61120

BACKGROUND

Actin is a highly conserved protein that is expressed in all eukaryotic cells. Actin filaments can form both stable and labile structures and are crucial components of microvilli and the contractile apparatus of muscle cells. Myosin is a hexamer of two heavy chains (MHC) and four light chains (MLC) that interacts with Actin to generate the force for diverse cellular movements, including cytokinesis, phagocytosis and muscle contraction. Myosin heavy chain 9 can also be designated Myosin IIa, nonmuscle Myosin heavy chain IIa, cellular Myosin heavy chain, type A, Myosin-9 or NMMHC-IIA. Myosin heavy chain 9 is involved in cell shape, cytokinesis, and specialized functions such as capping and secretion. It is expressed in leukoctyes and in kidney glomeruli. Defects in the MYH9 gene, which encodes Myosin heavy chain 9, are linked to Sebastian syndrome (SBS), Fechtner syndrome (FTNS), Alport syndrome with macrothrombocytopenia (APSM), autosomal dominant nonsyndromic sensorineural deafness 17 (DFNA17) and Epstein syndrome (EPS).

REFERENCES

1. Saez, C.G., et al. 1990. Human nonmuscle myosin heavy chain mRNA: generation of diversity through alternative polyadenylylation. Proc. Natl. Acad. Sci. USA 87: 1164-1168.
2. Lalwani, A.K., et al. 2000. Human nonsyndromic hereditary deafness DFNA17 is due to a mutation in nonmuscle myosin MYH9. Am. J. Hum. Genet. 67: 1121-1128.
3. Seri, M., et al. 2000. Mutations in MYH9 result in the May-Hegglin anomaly, and Fechtner and Sebastian syndromes. The May-Heggllin/Fechtner Syndrome Consortium. Nat. Genet. 26: 103-105.
4. Heath, K.E., et al. 2001. Nonmuscle myosin heavy chain IIA mutations define a spectrum of autosomal dominant macrothrombocytopenias: May-Hegglin anomaly and Fechtner, Sebastian, Epstein, and Alport-like syndromes. Am. J. Hum. Genet. 69: 1033-1045.
5. Deutsch, S., et al. 2003. Asp1424Asn MYH9 mutation results in an unstable protein responsible for the phenotypes in May-Hegglin anomaly/Fechtner syndrome. Blood 102: 529-534.
6. Ramamurthy, B., et al. 2004. Kinetic mechanism of blebbistatin inhibition of nonmuscle Myosin IIb. Biochemistry 43: 14832-14839.

CHROMOSOMAL LOCATION

Genetic locus: MYH9 (human) mapping to 22q12.3.

PRODUCT

MYH9 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 MYH9 shRNA Plasmid (h): sc-61120-SH and MYH9 shRNA (h) Lentiviral Particles: sc-61120-V as alternate gene silencing products.

For independent verification of MYH9 (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-61120A, sc-61120B and sc-61120C.

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

MYH9 siRNA (h) is recommended for the inhibition of MYH9 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 MYH9 gene expression knockdown using RT-PCR Primer: MYH9 (h)-PR: sc-61120-PR (20 µl, 505 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Balzer, E.M., et al. 2012. Physical confinement alters tumor cell adhesion and migration phenotypes. FASEB J. 26: 4045-4056.
2. Paul, C.D., et al. 2016. Interplay of the physical microenvironment, contact guidance, and intracellular signaling in cell decision making. FASEB J. 30: 2161-2170.
3. Petrosyan, A., et al. 2016. The role of Rab6a and phosphorylation of nonmuscle myosin IIA tailpiece in alcohol-induced Golgi disorganization. Sci. Rep. 6: 31962.
4. Kapoor, A., et al. 2018. Soft drug-resistant ovarian cancer cells migrate via two distinct mechanisms utilizing Myosin II-based contractility. Biochim. Biophys. Acta Mol. Cell Res. 1865: 392-405.
5. Casey, C.A., et al. 2018. Giantin is required for post-alcohol recovery of Golgi in liver cells. Biomolecules 8: 150.

RESEARCH USE

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