SANTA CRUZ BIOTECHNOLOGY, INC.

Espin siRNA (h): sc-78697

BACKGROUND

Espin (ESPN), also known as autosomal recessive deafness type 36 protein (DFNB36), is an 854 amino acid cytoplasmic protein that contains nine ANK repeats and one WH2 domain. The WH2 domain of Espin binds Actin monomers and mediates the assembly of the Actin bundle. This interaction plays a major role in the moderation of the organization, dynamics and signaling capacities of the Actin filament-rich specializations that regulate sensory transduction in various sensory cells. Defects in Espin are the cause of non-syndromic sensorineural deafness autosomal recessive type 36 (DFNB36), a sensorineural hearing loss caused by damage to the neural receptors of the inner ear, the nerve pathways to the brain or the region of the brain responsible for sound. Espin is expressed as two isoforms produced by alternative splicing and has been found to interact with IRSp53 and Profilin-2.

REFERENCES

1. Bartles, J.R., et al. 1996. Identification and characterization of Espin, an Actin-binding protein localized to the F-Actin-rich junctional plaques of Sertoli cell ectoplasmic specializations. J. Cell Sci. 109: 1229-1239.
2. Zheng, L., et al. 2000. The deaf jerker mouse has a mutation in the gene encoding the espin Actin-bundling proteins of hair cell stereocilia and lacks espins. Cell 102: 377-385.
3. Naz, S., et al. 2004. Mutations of ESPN cause autosomal recessive deafness and vestibular dysfunction. J. Med. Genet. 41: 591-595.
4. Loomis, P.A., et al. 2006. Targeted wild-type and jerker espins reveal a novel, WH2-domain-dependent way to make Actin bundles in cells. J. Cell Sci. 119: 1655-1665.
5. Donaudy, F., et al. 2006. Espin gene (ESPN) mutations associated with autosomal dominant hearing loss cause defects in microvillar elongation or organisation. J. Med. Genet. 43: 157-161.
6. Boulouiz, R., et al. 2008. A novel mutation in the Espin gene causes autosomal recessive nonsyndromic hearing loss but no apparent vestibular dysfunction in a Moroccan family. Am. J. Med. Genet. A 146A: 3086-3089.

CHROMOSOMAL LOCATION

Genetic locus: ESPN (human) mapping to 1p36.31.

PRODUCT

Espin 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 Espin shRNA Plasmid (h): sc-78697-SH and Espin shRNA (h) Lentiviral Particles: sc-78697-V as alternate gene silencing products.

For independent verification of Espin (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-78697A, sc-78697B and sc-78697C.

RESEARCH USE

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

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

Espin siRNA (h) is recommended for the inhibition of Espin 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

Espin (E-7): sc-393469 is recommended as a control antibody for monitoring of Espin 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 Espin gene expression knockdown using RT-PCR Primer: Espin (h)-PR: sc-78697-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.