SANTA CRUZ BIOTECHNOLOGY, INC.

DSPP siRNA (m): sc-40501

BACKGROUND

DSPP (dentin sialophosphoprotein) is a precursor protein that is cleaved into two mature forms, DSP (dentin sialoprotein) and DPP (dentin phosphoprotein). DSPP is a member of the small integrin-binding ligand N-linked glycoprotein (SIBLING) family of proteins and is secreted by odontoblasts. DSP is heavily glycosylated but DPP is not. DSP and DPP are principle proteins of the dentin extracellular matrix of the tooth, with DSP having a role in dentinogenesis and DPP binding calcium, facilitating initial mineralization of dentin matrix collagen and regulating the size and shape of the crystals. Mutations in the DSPP gene are associated with DFNA39/DGI1 (deafness, autosomal dominant, 39, with dentinogenesis imperfecta 1), a disease characterized by progressive heavy-frequency hearing loss, DGI2 (dentinogenesis imperfect 2) and DGI3 (dentinogenesis imperfecta 3), diseases characterized by amber-brown teeth that fracture and shed enamel with wear.

REFERENCES

1. Wang, S.K., et al. 2011. Enamel malformations associated with a defined dentin sialophosphoprotein mutation in two families. Eur. J. Oral Sci. 119: 158-167.
2. Suzuki, S., et al. 2012. Dentin sialophosphoprotein and dentin matrix protein-1: two highly phosphorylated proteins in mineralized tissues. Arch. Oral Biol. 57: 1165-1175.
3. Li, D., et al. 2012. Mutation identification of the DSPP in a Chinese family with DGI-II and an up-to-date bioinformatic analysis. Genomics 99: 220-226.
4. Maciejewska, I. and Chomik, E. 2012. Hereditary dentine diseases resulting from mutations in DSPP gene. J. Dent. 40: 542-548.

CHROMOSOMAL LOCATION

Genetic locus: Dspp (mouse) mapping to 5 E5.

PRODUCT

DSPP 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 DSPP shRNA Plasmid (m): sc-40501-SH and DSPP shRNA (m) Lentiviral Particles: sc-40501-V as alternate gene silencing products.

For independent verification of DSPP (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-40501A, sc-40501B and sc-40501C.

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

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

DSPP (LFMb-21): sc-73632 is recommended as a control antibody for monitoring of DSPP 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 DSPP gene expression knockdown using RT-PCR Primer: DSPP (m)-PR: sc-40501-PR (20 µl). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Ozeki, N., et al. 2015. Polyphosphate induces matrix metalloproteinase-3-mediated proliferation of odontoblast-like cells derived from induced pluripotent stem cells. Exp. Cell Res. 333: 303-315.

RESEARCH USE

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

PROTOCOLS

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