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SANTA CRUZ BIOTECHNOLOGY, INC.

Enamelin siRNA (h): sc-44947

BACKGROUND

Dental enamel is a highly mineralized tissue with most of its volume occupied by large, highly organized, hydroxyapatite crystals. This structure is thought to be controlled through the interaction of many organic matrix molecules including Amelogenin, Ameloblastin, Enamelin, Tuftelin and several other enzymes. All of these secreted proteins are involved in the mineralization and enamel matrix formation in developing tooth enamel. Enamelin (ENAM) localizes to the extracellular matrix. During the secretory stage of enamel formation, it plays a role in enamel extension. Enamelin is expressed in odontoblasts, cementoblasts and ameloblasts. Defects in the gene encoding for Enamelin, ENAM, may cause hypoplastic amelogenesis imperfecta 2 (AIH2), which is an autosomal dominant disease characterized by anomalies in enamel development.

REFERENCES

1. Torres-Quintana, M.A., et al. 2005. Ameloblastin and amelogenin expression in postnatal developing mouse molars. J. Oral. Sci. 47: 27-34.
2. Wang, H., et al. 2005. Enamel matrix protein interactions. J. Bone Miner. Res. 20: 1032-1040.
3. Paine, M.L., et al. 2005. Tooth developmental biology: disruptions to enamel-matrix assembly and its impact on biomineralization. Orthod. Craniofac. Res. 8: 239-251.
4. Masuya, H., et al. 2005. Enamelin (ENAM) is essential for amelogenesis: ENU-induced mouse mutants as models for different clinical subtypes of human amelogenesis imperfecta (AI). Hum. Mol. Genet. 14: 575-583.
5. Kim, J.W., et al. 2005. ENAM mutations in autosomal-dominant amelogenesis imperfecta. J. Dent. Res. 84: 278-282.
6. Mizuno, N., et al. 2005. Characterization of epithelial cells derived from periodontal ligament by gene expression patterns of bone-related and enamel proteins. Cell. Biol. Int. 29: 111-117.

CHROMOSOMAL LOCATION

Genetic locus: ENAM (human) mapping to 4q13.3.

PRODUCT

Enamelin 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 Enamelin shRNA Plasmid (h): sc-44947-SH and Enamelin shRNA (h) Lentiviral Particles: sc-44947-V as alternate gene silencing products.

For independent verification of Enamelin (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-44947A, sc-44947B and sc-44947C.

PROTOCOLS

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

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

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

Enamelin (2C12): sc-293334 is recommended as a control antibody for monitoring of Enamelin 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 Enamelin gene expression knockdown using RT-PCR Primer: Enamelin (h)-PR: sc-44947-PR (20 µl, 482 bp). 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.