SANTA CRUZ BIOTECHNOLOGY, INC.

Pax-9 siRNA (h): sc-38756

BACKGROUND

Pax genes contain paired domains with strong homology to genes in *Drosophila* which are involved in programming early development. Pax-9, a member of the paired box-containing gene family, is closely related in its paired domain to Pax-1. The Pax-9 gene encodes the highly conserved paired domain, and the gene is a member of the same subgroup as Pax-1/undulated. Pax-9 is essential for the development of a variety of organs and skeletal elements. Mutations in either the Pax-1 or the Pax-9 genes may produce an inherited skeletal disorder such as the Jarcho-Levin syndrome or other forms of spondylocostal dysplasia, conditions resembling "undulated" in the mouse. A frameshift mutation within the paired domain of Pax-9 was identified in a family segregating autosomal dominant oligodontia whose members had normal primary dentition but lacked most permanent molars. In addition to lack of permanent molars, some individuals also lacked maxillary and/or mandibular second premolars, as well as mandibular central incisors. The gene which encodes Pax-9 maps to human chromosome 14q13.3.

REFERENCES

1. Stapleton, P., et al. 1993. Chromosomal localization of seven Pax genes and cloning of a novel family member, Pax-9. Nat. Genet. 3: 292-298.
2. Wallin, J., et al. 1993. A new Pax gene, Pax-9, maps to mouse chromosome 12. Mamm. Genome 4: 354-358.
3. Peters, H., et al. 1998. Pax-9-deficient mice lack pharyngeal pouch derivatives and teeth and exhibit craniofacial and limb abnormalities. Genes Dev. 12: 2735-2747.
4. LeClair, E.E., et al. 1999. Expression of the paired-box genes Pax-1 and Pax-9 in limb skeleton development. Dev. Dyn. 214: 101-115.
5. Stockton, D.W., et al. 2000. Mutation of Pax-9 is associated with oligodontia. Nat. Genet. 24: 18-19.
6. Peres, R.C., et al. 2005. Association between Pax-9 promoter polymorphisms and hypodontia in humans. Arch. Oral Biol. 50: 861-871.
7. Devos, D., et al. 2006. New syndromic form of benign hereditary chorea is associated with a deletion of TITF-1 and Pax-9 contiguous genes. Mov. Disord. 21: 2237-2240.

CHROMOSOMAL LOCATION

Genetic locus: PAX9 (human) mapping to 14q13.3.

PRODUCT

Pax-9 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 Pax-9 shRNA Plasmid (h): sc-38756-SH and Pax-9 shRNA (h) Lentiviral Particles: sc-38756-V as alternate gene silencing products.

For independent verification of Pax-9 (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-38756A, sc-38756B and sc-38756C.

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

Pax-9 siRNA (h) is recommended for the inhibition of Pax-9 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

Pax-9 (7C2): sc-56823 is recommended as a control antibody for monitoring of Pax-9 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).

RT-PCR REAGENTS

Semi-quantitative RT-PCR may be performed to monitor Pax-9 gene expression knockdown using RT-PCR Primer: Pax-9 (h)-PR: sc-38756-PR (20 µl, 540 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Lee, J.C., et al. 2008. Pax9 mediated cell survival in oral squamous carcinoma cell enhanced by c-Myb. Cell Biochem. Funct. 26: 892-899.
2. Xu, J., et al. 2020. Paired box 9 regulates VSMC phenotypic transformation, proliferation, and migration via Sonic hedgehog. Life Sci. 257: 118053.
3. Bhol, C.S., et al. 2022. PAX9 reactivation by inhibiting DNA methyltransferase triggers antitumor effect in oral squamous cell carcinoma. Biochim. Biophys. Acta Mol. Basis Dis. 1868: 166428.

RESEARCH USE

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