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EYA1 siRNA (h): sc-41946

BACKGROUND

A gene on chromosome 8q13.3 encodes EYA1 (eyes absent), a protein with 16 exons. EYA1 is one of four members of the eyes absent family. A 271 amino acid domain at the carboxyl terminal is highly conserved amongst the members of the eyes absent family, while the PST (Proline-Serine-Threonine) rich amino terminal is highly divergent. EYA is expressed in flexor tendons and the developing central nervous system, kidney, eye and ear. EYA1 acts as a transcriptional activator in connective tissue patterning through its PST domain, which functions as a transactivation domain. EYA1 plays a critical role in the development of the inner ear and kidney. EYA is involved in early inductive signaling, acting upstream of GDNF. EYA1 has been implicated in the autosomal dominant disorders branchio-oto-renal (BOR) syndrome and branchio-oto (BO) syndrome.

REFERENCES

1. Abdelhak, S., et al. 1997. Clustering of mutations responsible for branchio-oto-renal (BOR) syndrome in the eyes absent homologous region (EYHR) of EYA1. *Mol. Genet.* 6: 2247-2255.
2. Abdelhak, S., et al. 1997. A human homologue of the *Drosophila* eyes absent gene underlies branchio-oto-renal (BOR) syndrome and identifies a novel gene family. *Nat. Genet.* 15: 157-164.
3. Xu, P.X., et al. 1997. Mouse EYA genes are expressed during limb tendon development and encode a transcriptional activation function. *Proc. Natl. Acad. Sci. USA* 94: 11974-11979.
4. Xu, P.X., et al. 1997. Mouse EYA homologues of the *Drosophila* eyes absent gene require Pax-6 for expression in lens and nasal placode. *Development* 124: 219-231.
5. Borsani, G., et al. 1999. EYA4, a novel vertebrate gene related to *Drosophila* eyes absent. *Hum. Mol. Genet.* 8: 11-23.
6. Xu, P.X., et al. 1999. EYA1-deficient mice lack ears and kidneys and show abnormal apoptosis of organ primordia. *Nat. Genet.* 23: 113-117.

CHROMOSOMAL LOCATION

Genetic locus: EYA1 (human) mapping to 8q13.3.

PRODUCT

EYA1 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see EYA1 shRNA Plasmid (h): sc-41946-SH and EYA1 shRNA (h) Lentiviral Particles: sc-41946-V as alternate gene silencing products.

For independent verification of EYA1 (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-41946A, sc-41946B and sc-41946C.

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 μ l of the RNase-free water provided. Resuspension of the siRNA duplex in 330 μ l of RNase-free water makes a 10 μ M solution in a 10 μ M Tris-HCl, pH 8.0, 20 mM NaCl, 1 mM EDTA buffered solution.

APPLICATIONS

EYA1 siRNA (h) is recommended for the inhibition of EYA1 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 μ M in 66 μ l. 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 EYA1 gene expression knockdown using RT-PCR Primer: EYA1 (h)-PR: sc-41946-PR (20 μ l, 551 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chai, L., et al. 2006. Transcriptional activation of the SALL1 by the human SIX1 homeodomain during kidney development. *J. Biol. Chem.* 281: 18918-18926.

RESEARCH USE

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