SANTA CRUZ BIOTECHNOLOGY, INC.

Sox-9 siRNA (h): sc-36533

BACKGROUND

Sox genes comprise a family of genes that are related to the mammalian sex determining gene SRY. These genes similarly contain sequences that encode for the HMG-box domain, which is responsible for the sequence-specific DNA-binding activity. Sox genes encode putative transcriptional regulators implicated in the decision of cell fates during development and the control of diverse developmental processes. The highly complex group of Sox genes cluster at least 40 different loci that rapidly diverged in various animal lineages. At present, 30 Sox genes have been identified. Members of this family have been shown to be conserved during evolution and to play key roles during animal development. Some are involved in human diseases, including sex reversal.

CHROMOSOMAL LOCATION

Genetic locus: SOX9 (human) mapping to 17q24.3.

PRODUCT

Sox-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 Sox-9 shRNA Plasmid (h): sc-36533-SH and Sox-9 shRNA (h) Lentiviral Particles: sc-36533-V as alternate gene silencing products.

For independent verification of Sox-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-36533A, sc-36533B and sc-36533C.

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

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

Sox-9 (E-9): sc-166505 is recommended as a control antibody for monitoring of Sox-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 Sox-9 gene expression knockdown using RT-PCR Primer: Sox-9 (h)-PR: sc-36533-PR (20 µl, 538 bp). Annealing temperature for the primers should be 55-60° C and the extension temperature should be 68-72° C.

SELECT PRODUCT CITATIONS

1. Chang, Y., et al. 2008. Involvement of Gas7 along the ERK1/2 MAP kinase and Sox-9 pathway in chondrogenesis of human marrow-derived mesenchymal stem cells. Osteoarthr. Cartil. 16: 1403-1412.
2. Swartling, F.J., et al. 2009. Cyclic GMP-dependent protein kinase II inhibits cell proliferation, Sox-9 expression and Akt phosphorylation in human glioma cell lines. Oncogene 28: 3121-3131.
3. McDonald, E., et al. 2012. Sox-9 regulates endocrine cell differentiation during human fetal pancreas development. Int. J. Biochem. Cell Biol. 44: 72-83.
4. Beauchef, G., et al. 2012. The p65 subunit of NFκB inhibits COL1A1 gene transcription in human dermal and scleroderma fibroblasts through its recruitment on promoter by protein interaction with transcriptional activators (c-Krox, Sp1, and Sp3). J. Biol. Chem. 287: 3462-3478.
5. Rani, S.B., et al. 2013. MiR-145 functions as a tumor-suppressive RNA by targeting Sox-9 and adducin 3 in human glioma cells. Neuro Oncol. 15: 1302-1316.
6. Feng, Z.C., et al. 2013. Downregulation of Fas activity rescues early onset of diabetes in c-Kit$^{Wv/+}$ mice. Am. J. Physiol. Endocrinol. Metab. 304: E557-E565.
7. Capaccione, K.M., et al. 2014. Sox-9 mediates Notch1-induced mesenchymal features in lung adenocarcinoma. Oncotarget 5: 3636-3650.
8. Jeon, E.S., et al. 2014. Cobalt chloride induces neuronal differentiation of human mesenchymal stem cells through upregulation of microRNA-124a. Biochem. Biophys. Res. Commun. 444: 581-587.
9. Alankarage, D., et al. 2016. Sox-9 regulates expression of the male fertility gene Ets variant factor 5 (ETV5) during mammalian sex development. Int. J. Biochem. Cell Biol. 79: 41-51.
10. Goto, S., et al. 2018. Neural retina-specific Aldh1a1 controls dorsal choroidal vascular development via Sox-9 expression in retinal pigment epithelial cells. Elife 7: e32358.
11. Mirra, S., et al. 2021. ARMCX3 mediates susceptibility to hepatic tumorigenesis promoted by dietary lipotoxicity. Cancers 13: 1110.

RESEARCH USE

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