

Pax-8 siRNA (m): sc-38752

BACKGROUND

The Pax family encodes transcription factors that function during embryogenesis and regulate the temporal and position-dependent differentiation of cells. Pax-8 is expressed in the developing and adult thyroid, the developing secretory system and at lower levels in the adult kidney. Pax-8 complexes with TTF-1 and TTF-2 to induce thyroid follicular cell differentiation and thyroid hormone biosynthesis by regulating the expression of sodium iodide symporter (NIS), thyroid peroxidase (TPO), thyroglobulin (TG) and thyrotropin receptor (TSHR). Treatment of FRTL-5 cells with TGF β 1 decreases Pax-8 mRNA levels and Pax-8 DNA binding activity, which suppresses the expression of TG and the formation of thyrocytes. Patients who have autosomal dominant mutations of the Pax-8 gene develop thyroid dysgenesis. The Pax-8 gene produces six isoforms, A to F, that are generated by alternative splicing and differ in their carboxy-terminal regions. The Pax-8 isoforms display different DNA binding capacities and are thought to be functionally distinct. The gene which encodes Pax-8 maps to human chromosome 2q13.

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. Igarashi, P. 1994. Transcription factors and apoptosis in kidney development. *Curr. Opin. Nephrol. Hypertens.* 3: 308-317.
3. Poleev, A., et al. 1995. Distinct functional properties of three human paired-box-protein, Pax-8, isoforms generated by alternative splicing in thyroid, kidney and Wilms' tumors. *Eur. J. Biochem.* 228: 899-911.
4. Peters, H., et al. 1998. Pax genes and organogenesis: Pax-9 meets tooth development. *Eur. J. Oral Sci.* 106: 38-43.
5. LaFranchi, S. 1999. Congenital hypothyroidism: etiologies, diagnosis, and management. *Thyroid* 9: 735-740.
6. Suzuki, K., et al. 1999. Thyroglobulin regulates follicular function and heterogeneity by suppressing thyroid-specific gene expression. *Biochimie* 81: 329-340.
7. Damante, G., et al. 2000. A unique combination of transcription factors controls differentiation of thyroid cells. *Prog. Nucleic Acid Res. Mol. Biol.* 66: 307-356.

CHROMOSOMAL LOCATION

Genetic locus: Pax8 (mouse) mapping to 2 A3.

PRODUCT

Pax-8 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 μ M solution once resuspended using protocol below. Suitable for 50-100 transfections. Also see Pax-8 shRNA Plasmid (m): sc-38752-SH and Pax-8 shRNA (m) Lentiviral Particles: sc-38752-V as alternate gene silencing products.

For independent verification of Pax-8 (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-38752A, sc-38752B and sc-38752C.

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

Pax-8 siRNA (m) is recommended for the inhibition of Pax-8 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 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.

GENE EXPRESSION MONITORING

Pax-8 (PAX8R1): sc-81353 is recommended as a control antibody for monitoring of Pax-8 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-IgG κ BP-HRP: sc-516102 or m-IgG κ BP-HRP (Cruz Marker): sc-516102-CM (dilution range: 1:1000-1:10000), Cruz MarkerTM Molecular Weight Standards: sc-2035, UltraCruz[®] Blocking Reagent: sc-516214 and Western Blotting Luminol Reagent: sc-2048. 2) Immunofluorescence: use m-IgG κ BP-FITC: sc-516140 or m-IgG κ 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 Pax-8 gene expression knockdown using RT-PCR Primer: Pax-8 (m)-PR: sc-38752-PR (20 μ l). 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.

PROTOCOLS

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